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ON THE RIVER SOURABAYA.

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NARRATIVE

OF THE

SURVEYING VOYAGE OF H.M.S. FLY,

COMMANDED BY

CAPTAIN F. P. BLACKWOOD, R.N.

IN

TORRES STRAIT, NEW GUINEA, AND OTHER ISLANDS OF THE EASTERN ARCHIPELAGO,

DURING THE YEARS 1842–1846:

TOGETHER WITH

AN EXCURSION

INTO THE

INTERIOR OF THE EASTERN PART OF JAVA.

BY

J. BEETE JUKES, M.A. F.G.S.

NATURALIST TO THE EXPEDITION,

AUTHOR OF "EXCURSIONS IN NEWFOUNDLAND."

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Map of the Eastern End of the Island of Java.

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VOYAGE OF THE FLY.

CHAPTER I.

START ON A TOUR INTO THE INTERIOR—VISIT A SUGAR ESTABLISHMENT—ARRIVE AT PASSAROUAN—VISIT IRON FOUNDRY—BLUE WATER SPRING—NATIVE MARKET—ARRIVE AT PROBOLINGO—SIZE OF THE TOWNS AND POPULOUSNESS OF THE COUNTRY—GOVERNMENT STORES—BASIN AND CANAL—BEAUTIFUL PROSPECT—SET OFF ON HORSEBACK—FINE COUNTRY—COFFEE PLANTATIONS—ARRIVAL AT KLAKKA—BEAUTIFUL SITUATION—GEOLOGICAL STRUCTURE—SHOOTING EXCURSION—TIGERS—MAGNIFICENT VIEWS—LUXURIOUS LIVING.

Nov. 9, 1844.—ALTHOUGH the necessary passports had not yet all arrived, we determined to set off this morning, and let them be sent after us. Our party consisted of Captain Blackwood, Mr. Evans, Mr. Hill (a gentleman from Mr. Fraser's office), and his servant, and myself. Mr. Hill spoke Malay, and his servant, who was a Bengalee, spoke both Malay and Javanese. We were obliged to encumber ourselves with a good deal of baggage, as it was necessary to take cloth clothes for the cold weather

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on the mountains, and dress coats, in which to present ourselves to the authorities; accordingly, we found the carriage we had hired too small, and should have been again delayed, had not Mr. Darling, an American gentleman from Batavia, whom we met at Mr. Fraser's, lent us his carriage to go as far as Passarouan. We were thus enabled to set off at half-past six. We had four good little horses, and proceeded with considerable rapidity along an excellent level road, reaching the second post-house in an hour and a quarter. These post-houses are from five to seven pauls apart, or about six miles on the average.* At each of these post-houses there is a large wooden shed, stretching completely across the road, to shelter the horses and travellers from the sun while the horses are changed. The carriage road is broad and hard, and raised two or three feet above the level of the country, with an inferior road at the side for the native carts and waggons. The country thus far seemed very populous, as we had already passed several large villages and two markets. The latter were held at open spaces, where cross roads came into the main line; they were crowded with people, and with piles of fruit, fish, both fresh and dried, and other commodities. The country, hereabouts, is very flat, and scarcely above the level of the sea. Large open tracts were under cultivation with rice

* The Javanese paul equals 1652·3 English yards, so that 17 pauls are very nearly 16 statute miles.

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or sugar-cane, interspersed with large patches and belts of wood. These looked like pieces of jungle left uncleared, but were in fact villages, the houses of which were concealed by groves of fruit-trees. At about fourteen miles from Sourabaya we stopped to see a sugar manufactory belonging to the Messrs. Vandenbruck, three Belgian gentlemen. We were very kindly received in a large and handsome house, and conducted over the establishment behind. This was very extensive and complete. The mill was set in motion by water, and the canes, after being crushed, are carried into the fields to dry, and afterwards used for fuel. The juice runs into some large vats, and thence into a great boiler, where quick-lime is added to it while boiling, to throw up the scum and refuse, which swims in a thick crust at the top. It comes out thence pretty clear, and runs into other vats, where animal charcoal (burnt bones) is added, and it afterwards passes through great tubs of that substance, by which it is filtered. After passing through one or two processes of this kind, it is admitted into pans where it is rapidly boiled till ready to crystallize. This is the most delicate part of the process, and was superintended by a Chinese, who judged of the exact moment by repeatedly taking a little on a stick, and dipping it into cold water. When ready, it is drained off into large pots, where it is left to crystallize and cool. Wet clay is then spread over these pots, the water from which gradually drains through the sugar,

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and carries off the molasses and other impurities through holes in the bottom. The sugar is then spread out in the sun to dry, after which it is packed in baskets for shipment. Some of the clayed sugar which Mr. Vandenbruck shewed us, was as white as snow in the upper part of the pot, but it gradually got darker towards the lower extremity.

The production of sugar, to any extent, is of recent origin in Java, and may be said to be the act of the Dutch Government.

Private property in land is a thing unknown in Java, except in the case of some estates acquired during the English occupancy, between the years 1811 and 1816. In the year 1832, Governor Van den Bosch, in order to encourage sugar-growing, adopted the following system. The Government entered into a contract with any individual, whether Dutchman or foreigner, who was willing to become a sugar manufacturer, and agreed to advance him money to erect his mill and other buildings, and lease him a site for the same, and to cause the surrounding fields to be planted with sugar-cane by the natives, on condition that all the sugar produced was sold to Government at certain rates. The money advanced was to be repaid by instalments, and at the end of the contract the buildings were to be taken by Government at a valuation. The settler thus had no need of capital, but merely of a certain amount of intelligence, industry, and

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knowledge of his business. The Government undertook to plant the canes and superintend their culture, and to ensure the supply of a certain quantity to the mill, as also to provide coolies and servants for the work in the establishment, the only payment by the contractor being a rate of 3½ rupees on every picul of sugar produced, in order to reimburse the Government for the cane and the price of labour. This was, of course, in addition to the gradual repayment, without interest, of the money advanced to enable him to erect his house and buildings.* The contract was generally entered into for twenty years, and in the first contracts the prices given for the sugar produced were so extremely favourable that every contractor made large profits. Very few Dutchmen, however, engaged in the business at first, but principally English and Chinese,† masters of country ships and other traders, who happened to be on the spot. Gradually, as the manufacture became established, and the resident Dutchmen began to enter into it, the contracts, especially those granted to foreigners, became less favourable, and a more recent regulation of the Government actually prohibited all foreigners whatsoever from owning, holding, or renting land, or even from residing in the country, unless they shall

* See a more detailed account of the sugar cultivation in Java at the end of chapter 6th.

† By a recent edict, Chinese are prohibited for the future from becoming "sugar-fabricants."

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have been naturalised as Dutch subjects previously to the passing of the act.*

After spending an hour or more at Mr. Vandenbruck's, we proceeded to Porrong, where we crossed, by a bridge, a branch of the Kediri. Here were one or two more sugar establishments and a large market, while a few miles on our right rose Porrong Hill, a fine volcanic cone, the top of which was shrouded in clouds, with beautiful wooded slopes dipping into the flat country of the coast. At eleven o'clock we reached the fifth post-house (or wissel-post), where, for the first time, we got a bad team of horses, which, with some difficulty, took us two miles, when we found others waiting for us by the road side. We here rose onto a low range of undulating ground striking from the base of Porrong Hill, and changed the rich cultivation of the flats for a brown, barren-looking tract, like the hills near Gressik. I could not see any section exposed, but, from pieces of stone by the roadside containing recent shells, I believe this is a ridge of recent limestone. A small valley traversed this tract, with a dry water-course. About half an hour after noon, we entered Passarouan, having been only six hours

* This edict was issued in 1834, previously to which time any European, by applying and paying about 10*l.* for stamps, swearing, at the same time, fidelity to the Governor, as representative of the King of Holland, and obedience to the laws of the colony, could receive full privileges as a citizen, could own property, and travel to any part of the island he liked.

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coming forty miles, including stoppages. Passarouan was a much larger place than we at all expected, having several wide streets, which, besides the native kampongs, were lined in the centre of the town with Chinese houses in court-yards, large merchants' stores, and European residences, having lawns and carriage drives. The native Javanese all reside in separate kampongs, or quarters, each of which is surrounded by a fence, either of bamboo paling or a wall: to these there is often not more than one entrance gate. In these kampongs their bamboo houses seem to be scattered indiscriminately under the shade of bananas, cocoa-nuts, and other fruit-trees, and of bamboos and plants useful in their buildings. There is a native headman in each kampong, who is responsible to the next higher native authority for the good behaviour of its inhabitants. The Javanese seldom change their kampong, although not absolutely tied to it by any legal regulation.

We drove to Mr. M'Clelland's to breakfast, after which we went out to a small place called Samarangan, where this gentleman had an iron foundry. Here we found many native workmen forging or casting iron machinery, principally for the sugar-mills. They make very good blacksmiths, which is esteemed a very honourable profession among them.*

In the evening we called upon the Secretary of

* In the Friendly Islands that of a carpenter is esteemed the most honourable employment of all mechanical arts.

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the residency, the Resident being at his country-house on the hills. We found the Secretary also was from home. The only military force at Passarouan was a party of fifty native troops, under the command of a first lieutenant.

Our pass had not yet arrived, but on consultation, we determined to go on next day to Probolingo and take our chance. It appeared from what we heard this evening that some of the authorities were rather puzzled how to act with regard to us. Our going into the country at all, without an order from the Governor-General, was quite contrary to all rules, and even to actual laws. Masters of merchant vessels who wished to go merely to Passarouan on business from Sourabaya and back again, had been refused permission; as we, however, belonged to a man-of-war, the regulations were relaxed in our favour. The Resident of Sourabaya, moreover, was a liberal man, and a favourite at head-quarters, and did as he pleased. The Resident of Besuki, also, in which Probolingo is situated, was described as a liberal person, with whom we should have no difficulty. It appeared, however, that the Resident of Passarouan was more one of the old school, and moreover, was rather afraid of losing his post, as his is the richest residency in the island. His salary, indeed, is only 1,500*l.* per annum, but it appears that each Resident* has a per centage on the

* As also every other officer—native and Dutch.

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amount of produce—such as coffee, sugar, tobacco, rice, &c.—raised in his district; and as Passarouan is very fertile, the Resident derives 50,000 rupees, about 3,400*l.* per annum from this source. This residency is therefore an object of envy and ambition, and of no little intrigue in consequence. Now the present Resident must either directly break the law in facilitating our passage through his district, or he must refuse when his neighbours have complied, and for doing something like this, in the case of the captain of a French man-of-war, he got a reprimand from his government last year. In either case he feared advantage would be taken in some way to dispossess him of his post. We were a good deal surprised at this little piece of secret history, and thought the best way would be to cut the Gordian knot at once, by pushing on into the next residency, and leaving the authorities to settle our passes as they pleased.

Nov. 10.—We set off this morning at six o'clock, in an open carriage, through a country similar to that we had traversed yesterday, but still more rich and highly cultivated, while, through the groves of cocoa-nuts and areca-palms and other trees that bordered the road, we got glimpses of a fine range of mountains on our right, that added interest and variety to the scenery. We reached the first wissel-post in an hour, a little beyond which we turned off to the right up a cross road to visit a famous spring, called the "Blue water." This cross road led us

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for about five miles directly towards the foot of the hills, the ground gradually rising and undulating a little, but still completely cultivated to the very foot of the mountains. The crops were sugar-cane, maize, some of which was in flower, and rice. The latter was to be seen in almost all stages, some of the fields being fallow, in some the crop was half-grown, while in others it was just springing up. The rice fields are peculiar, from their being divided into many small square plots, or pans, as it were, about ten yards in the side, bounded by small ridges of earth eighteen inches high. These ridges are for retaining the water, which is always kept two or three inches deep over the roots of the grain till it is just ready to ripen. On every slope these little embankments are still more numerous, the greatest care being taken not to lose a drop of water more than is absolutely necessary. The half-grown rice looked something like short oats. In some of the fields, where either rice or maize was coming into ear, small sheds were erected on posts in the centre of the field, from which strings radiated in every direction over the crop, with feathers attached to them. A boy or a girl was stationed in the shed to keep the strings in motion, in order to frighten away the flocks of Java sparrows, many of which were careering about in large flights over the fields. We saw several of the little plots in which the rice or paddy is first set. In some of these it was springing up as close as possible, looking like close grass.

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From these plots it is transplanted into the fields, women setting each plant separately by hand in rows as regularly as drilled wheat. What would an English farmer think of having to transplant a few hundred acres of wheat?

When almost at the foot of the hills we stopped at a small wood, in which we found a circular pool of water, some thirty yards across, with a cottage and alcove on one side, to undress under, and steps leading to the water. The water was perfectly clear, and, in the deep parts, of a beautiful light blue. It was full of very fine fish, like mullet, which could be seen at a depth of fifteen or twenty feet, and on the opposite bank we could see black monkeys peeping at us from among the trees. At the first plunge the water felt intensely cold, but after keeping a thermometer three feet under water for fifteen minutes, it only fell to 74°, the temperature of the air under the alcove being at the same time 79°. From the Blue water we returned to the main road, on the opposite side of which was a large market crowded with people. We went to examine it, and found rows of stalls or long sheds, in some of which European articles, such as cutlery or drapery were exposed; in others were drugs, while others had fruit, or confectionary, or salt fish. Neither was there any want of present refreshment, as some of the stalls had benches before them, on which sat people drinking coffee, eating boiled rice, hot sweet potatoes, fruit, and sweetmeats. The

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people here all spoke Javanese, and but few understood Malay, so that we found Hill's servant, Yacoob, very useful as an interpreter.

From this place to Probolingo the road was in many places heavy and sandy, and we got one or two very poor sets of horses, so that we proceeded with difficulty, and sometimes were obliged to walk. The country passed through also was in many places less rich than usual, as we came close upon the sea and its marshes. We reached Probolingo about noon, and were again surprised at the extent of a place we had never heard of till a day or two before. Broad roads, with avenues of lofty trees, intersected each other at right angles, bounded by the fences of the native kampongs, which looked like large orchards. Here and there were European houses of good size and appearance, each in its own grounds, with a carriage drive under the trees. We drove up to a very comfortable hotel, clean and well kept, but the master of which spoke little or no English.

Our first care was to see the Assistant-resident, but we found he was out of town, and would not return till next day. Captain Blackwood and Hill then drove out to call on Mr. Etty (brother of the celebrated artist of that name), who had a large sugar establishment about three miles off. Mr. Etty, senior, was in England, but his sons came down to the hotel in the evening to offer us any assistance in their power. They had been out wild

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pig shooting, at a place called Rongo Jalan, about seven miles from Probolingo, and described the sport as excellent, having killed thirteen that afternoon. As we must of necessity remain here, to see the Assistant-resident, we agreed to accompany them the following afternoon.

Nov. 11.—After a bath and a cup of coffee before sunrise, we walked down towards the sea. A broad road, sheltered by lofty trees, led to a large open square covered with a fresh green expanse of excellent turf. On one hand was the mosque, and on the other a large court, containing the house of the Regent or native chief of the place. Opposite us was a large walled building, forming the barracks for the troops, of which not more than thirty-five are usually posted here; while another side of the square was occupied by a market crowded with people, and in which large piles of beautiful melons, for which Probolingo is celebrated, caught our attention. Beyond the barracks, we came to the government storehouses, a range of buildings forming three sides of a square, in the centre of which is a basin, faced with masonry. From this a canal has been carried out to sea into the deep water, between two piers $1\frac{1}{4}$ mile long. The piers were broad, and formed of blocks of coral, and faced on the inside with brick and stucco, with stone steps here and there down to the water's edge. The canal was twenty yards wide, and deep enough for large cargo boats. There were no vessels here now,

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but they were expected shortly; and the master of the hotel informed us, that there was sugar and coffee enough now in the storehouses to load twenty large ships. The shore was flat, and at low water shewed extensive mud-flats, nearly dry, running in each direction as far as we could see along the coast. Both the strait of Sourabaya, indeed, and all the Java shores hereabouts, are rapidly filling up with mud. In some places near Sourabaya, the water has shoaled as much as four feet in five years. Twenty or thirty years ago large frigates entered the strait, having a draught of water which would make them now unable even to approach it. From the pier, the view of the country in the morning sunlight was very beautiful. Rows and groves of cocoa-nuts, bananas, and other tropical trees, shut out almost all the town except a few white walls glimmering through their leaves. Still loftier forest trees, with dark umbrageous foliage, seemed to form an impervious wood behind them, immediately over which rose a fine broken range of mountains on the south-west, called the Teng'ger; towards the east another range as lofty, but more distant, stretched away peak after peak till it was lost in the haze of the rising sun; while in the valley between the two, clear in the cool morning air, rose a noble volcanic cone, called the Lamongan.

I was informed that many Madurese had come over and were settled about Probolingo. Madūra is inferior in fertility to Java, and cannot always sup-

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port its population. In addition to this, the Sultan of Bankālang keeps a small standing army, and I believe furnishes also a certain contingent of men to the Dutch troops in Java, and his subjects emigrate to avoid this conscription. The language of Madura is said to be harsh and difficult; that of Java, on the contrary, is a rather harmonious and fine sounding language. I learnt now, for the first time, from young Mr. Etty, having hitherto never read Sir Stamford Raffles' History of Java, that the Javanese is divided into two dialects,—the high and the low tongue. An inferior addressing his superior must always speak the "bhasa krema," or polite language, using the most elegant and poetical terms he can think of, while the superior answers in the commonest and most vulgar method of speech.* It is not, however, simply a difference of

* Analogies may be traced in the Polynesian Archipelago. See Mariner's Tonga Islands, vol. ii. p. 84.

Crawfurd, in his History of the Indian Archipelago, vol. ii., gives the following account of the languages of Java, which is somewhat different from, but no doubt more correct than the above.

"Speech is, in fact, divided into two dialects, the ordinary language, and one invented to express deference and respect. This distinction by no means implies a court or polished language, opposed to a vulgar or popular one, for both are equally polite and cultivated, and all depends on the relations in which the speakers stand to each other. A servant addresses his master in the language of deference, a child his parent, a wife her husband if there be much disparity in their ages, and the courtier

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expression, but in many cases an absolute difference in the words; it being a high mark of disrespect for an inferior to call even the commonest things by the

his prince. The superior replies in the ordinary dialect, the language still affording modifications and distinctions according to the rank of the person he addresses, until that rank rises to equality, when, if no intimacy subsists between the parties, the language of deference is adopted by both; or if there does, ceremony is thrown aside, and the ordinary language becomes the only medium of conversation. . . . .

"In a few words of rare occurrence no change takes place. Recourse in other cases is had to the recondite language of literature, which is equivalent to the Sanskrit. . . . . Sometimes the word used in the language of deference is an entire synonym, differing in sound and orthography, as for 'gawe' to do, 'damal.' . . . .

"The most frequent mode of all, is by effecting a slight orthographical change in words of the ordinary language. A termination in *s*, in *ng*, and in *tan* is respectful; and it is respectful always to change a broad-sounding vowel into a more slender one. 'Maricho' pepper, becomes by this rule 'mariyos;' 'priyai,' chief, 'priyantan;' 'kayu,' wood, 'kajang.' . . . . . Even the names of places are in the most puzzling and provoking manner, subjected to the same changes. In writing to a superior, for instance, it would be thought ill-bred to use the usual words Cheribon, Garsik or Solo, the inferior would call them respectively Grage, Tandas, and Surakarta."

Of the ancient Kawi language, he remarks: "The Kawi, in its simplicity of structure, resembles the Javanese, but it has a greater variety and range of consonants and vocalic sounds than the popular language, is harsher in its prosody than what we expect in the genius of the soft tongues of the Indian Islanders, and seems, in short, to have in this particular a foreign air. In its composition it abounds in Sanskrit words—

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words he uses among his equals, if the polite language affords an equivalent term. If it does not, he uses as much as possible metaphorical or periphrastic expressions.

Two equals of high rank, both use the high language, but it often happens that, for want of practice, they are inferior in elegance of speech to the lowest of the people who daily have intercourse with superiors of some degree. Besides these two dialects, there is an ancient language, called the Kawi, which is now become a dead tongue, and exists only in old inscriptions, which no one understands. In the western half of the island, again, the Sunda language still lingers among the mountains, differing

at the same time it contains many essential words of the modern language of Java. The opinion I am inclined to form of this singular language is, that it is no foreign tongue introduced into the island, but the written language of the priesthood, to whom it is probable, in early times, the use of letters was confined."

Of the Sunda, he remarks, that it is "the language of the mountaineers of the west, or about one-tenth of the inhabitants of the island. It has several uncouth sounds, similar to those which prevail in the Celtic dialects, and that all the observations made respecting the Sunda language apply generally to the rude and uncultivated dialect of Madura."

While this work was passing through the press, I read with great delight the concluding volume of Dr. Pritchard's Researches into the Physical History of Mankind. (vol. v. published 1847.) In the first part of this volume the reader will find the whole subject of the Malayo-Polynesian races treated in a most admirable and interesting manner.

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in some respects from the common Javanese. Java, indeed, is properly the name of only the eastern part of the island, the western half being Sunda: people at Batavia would talk of going to Java when they were going to Sourabaya, or any other part of the eastern division of the island. The Malay language is only commonly spoken in the large towns on the coast, especially the sea-ports; but the Dutch oblige all the native authorities to learn Malay, as it is the tongue used in all public transactions between them.

At eleven o'clock, hearing that the Assistant-resident had returned, we went to wait on him, and were received with great civility. He made quite light of the passport matter, and said it should be all arranged and sent after us along our route. We then went to call on the Regent, or native authority. We drove into a court-yard, in the centre of which was one of the great sheds so frequently used in Java, called a "pandopo." This is a roof either of tiles, or more commonly of wood, covered with a thatch of matting called "atop," made of the leaves of a palm, raised to a height of twelve or sixteen feet, on stout wooden posts or pillars, with a raised floor commonly of brick. It is open at the sides, except a partial railing of matting about three or four feet high, and sometimes blinds or curtains of matting or split cane are rolled up under the eaves, and can be let down at pleasure at any part, to exclude the sun or the rain. These

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"pandopos" are of all sizes, according to their situation and purpose. This one was about forty feet by thirty, and we saw lying in it a large number of native musical instruments, forming the Regent's "gamelang," or native band. His house was fronted along its whole length by a large raised verandah, in which were tables and chairs, and which seemed the usual reception room. This was likewise fitted with blinds of small cane, which rolled up or let down at pleasure, and thus formed a very comfortable and airy apartment.

Soon after we were seated the Regent joined us from the interior of his house, dressed in a plain jass (a kind of dressing-gown), and a sarong, apologising for keeping us waiting, as he had been suffering under low fever. He was a middle-aged man, rather stout, with broad, good-humoured, and intelligent countenance, and having very easy and well-bred manners. He ordered refreshments of fruit, cakes, and wine, the latter some of the best Madeira we tasted on the island, and entered into all our plans with great readiness. He sent for one of his dependants, who sat down on a mat before him to receive his instructions, raising his joined hands to his head in the attitude of supplication at every pause. The Regent gave him his orders very distinctly, referring every now and then to Hill, who acted as our interpreter, and in a short time it was all arranged. He then took leave of us with great cordiality, wishing us a pleasant

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journey. It appeared that the Dutch authorities having granted permission for our journey, all the arrangements for our reception and transit were handed over to the native chiefs, orders being sent along the route we intended to pursue. After leaving the Regent we prepared to set out for Rongo Jalan on our pig-shooting excursion. We set off from the hotel in a very inconvenient old carriage with six horses, but had scarcely got a mile out of Probolingo, when our coachman, who seemed hardly equal to six in hand, in endeavouring to turn up a cross road, got his horses all in a heap, nearly overturned us, and broke one of the pins that secured the pole. We immediately sent two horses back and a man to bring a new pin, but in the meanwhile, a Chinese, passing by in a cart, who was a kind of travelling blacksmith, came to our assistance, and in a short time enabled us to proceed. We whiled away the time by strolling among the stalls of a small market-place close by, and lunching on coffee, rice-cakes, and bananas. When again under weigh we travelled several miles, till we passed a post-house, and came to a rough hill, when it appeared our sapient coachman did not know exactly where Rongo Jalan was. After a little time a man came who offered to take us across to the place, which we found to be three miles distant, and we sent the carriage round. The country here was undulating, and not very rich or well cultivated, and we crossed several morasses and pools of water, arriving only a little before

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sunset at a pandopo, where we ought to have been three hours before. Our friends, the Ettys, were out, and we could hear dropping shots at some distance, but it was too late to join them. A pool of water lay on one side, with much marshy ground round it, but in the centre of a clear spot the surface boiled up with great violence from a strong spring, though the water was said to be 60 feet deep. By means of an old boat I got out to this spot, and found the temperature of the water 76°, that of the air at sunset being 84°. This spring, and that of the Blue water, are about an equal distance from the sea, and no doubt owe their origin and the coldness of their water to the same circumstances, the water sinking down from the high grounds of the mountains, and rising to the surface of the plains at the first crack it meets with. Our friends did not return till seven or eight o'clock, when we walked some distance to our carriages, and then drove by torchlight to Mr. Etty's house to dinner. It is the custom when driving at night, both in the country and in the towns, for the foot-boy, who stands behind the carriage, to carry a long bundle of split bamboo, or of palm-leaves, for a torch. Even in Sourabaya there were few or no lamps in the streets. Mr. Etty's establishment seemed large and handsome. They entertained us at dinner with sporting anecdotes, and exhibited tiger skins, the spoils of past exploits. One of the tigers had been hunted and killed single-handed and on foot.

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and sheltered frequently by trees along the sides, and for horses it was excellent, as a broad fringe of excellent turf bordered the central carriage road for half a mile at a stretch. On these cross roads permanent relays of horses are not kept at the post-houses, so that word has to be sent along the line before the traveller, in order that the number required may be provided by the different native authorities. We always found the people most obliging and attentive, and willing to do everything to please us. If any one did not like the pace of his horse, he had but to express his dissatisfaction, and one of the attendants instantly dismounted and shifted his saddle on to any other he might choose without an instant's hesitation.

We began now to meet with coffee plantations, mingled with fields of maize and small patches of other crops. The coffee plantations were very pleasant looking places. The coffee shrubs are planted in rows, with tall trees between each row to shelter the coffee from the sun. The alleys between the trees are carpeted by rich green turf, forming pleasant glades. The plantations are generally neatly fenced, and are often extensive, as much as twenty or thirty acres in one plot. Every now and then we passed by the road side a noble tree with wide-spread drooping branches, a species of Banian-tree, under which was often a bullock-waggon with its team, and a group of people resting in the shade. The waggons were laden generally with paddy,

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while coffee seemed to be carried in large packs or hampers on the backs of the ponies. These ponies, though small, were strong and spirited little creatures.

Coming to a small village of one kampong, we found under some old trees in front of it, two or three bamboo huts or stalls, with hot tea, coffee, sweet potatoes, rice-cakes, and a kind of cold rice-pudding, for sale. They had also fruit, such as mangoes and bananas. We immediately stopped and refreshed, rather to the amusement of our escort, and, at first I thought, to the slight alarm of the people, who hardly seemed used to European customers. However we found their viands very good, and soon put the people at their ease. The women here (who, as elsewhere, were the principal shopkeepers and transactors of business) had their ears bored by large holes, the flap hanging down very much, a custom I did not observe elsewhere. They all spoke Javanese, which was quite unintelligible to us, although we were gradually picking up a little Malay.

About one o'clock we turned off from the road to the left, by a little track across the fields, and then got into a narrow winding lane, with deep banks overgrown with creeping plants and underwood, that led down to a rapid brook full of little waterfalls. The scenery put me in mind of spots in Devonshire, or south Shropshire, so green and fresh was all the vegetation, and so pleasant the deep narrow lanes

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and sparkling brooks. Rising from this, we again came on to a broad straight road, leading up an ascent to the left, at the top of which was our halting-place for the day, the "passangĕrang" or guest-house of Klakka. This was a large and lofty bamboo house, on a raised terrace of brick, having a broad verandah all round, a large central saloon, and two or three good and well-furnished bedrooms on each side. The verandah at the back looked down a steep bank on to a beautiful circular pool or small lake, about a quarter of a mile across, bordered by a thick belt of wood, and right over it, at a few miles' distance, rose the stately cone of the Lamongan, upwards of 4000 feet in height, with a wreath of white smoke curling from its summit. The ground was agreeably undulating and diversified on every side: on our left was a narrow ravine, through which the brook we had crossed lower down escaped from the lake; and a few hundred yards on our right was a small kampong with a few cottages. In the verandah, which overlooked this lovely prospect, we found a table spread with a snow-white cloth, and all conveniences of glass, plate, and cutlery. There was a troop of willing servitors in attendance, who, as soon as we had washed and changed our clothes, covered the table with a smoking hot breakfast, piles of rice, curries, pilaus, and fruits, with tea and coffee, and stood ready to obey our slightest command. There was no host, no master of the house to trouble us with ceremony: the house

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and all that belonged to it seemed to be ours as long as we chose to stay in it. Whose was the furniture, or who provided the entertainment, we did not know, and we found, when we went away, there was nothing to pay, except any little gratuity we might choose to give the men who attended on us so obsequiously. Hill, indeed, being more acquainted with the customs of the country, had taken upon himself the management of our money matters, so that I only heard this afterwards. In the meanwhile, so delightful did we find the situation, and so enjoyable the whole of the arrangements, that we determined to stay here the next day, and try to get a little shooting in the neighbourhood. When the sun got low, I took my hammer and went down into the ravine, while the rest went out shooting. I found all the beds exposed, the total thickness of which was one or two hundred feet, to consist of a soft rock of volcanic sand and ashes pretty firmly compacted together. The grains, which were generally quite globular, varied from the size of peas to the finest sand; the beds were finely and regularly laminated and regularly stratified, generally about one foot thick, and seemed as if the materials had been deposited under water. Roundish, detached masses of lava or basalt appeared here and there, partially embedded, often one or two feet in diameter, but I could not make out how they came there. In the ravine the brook frets over the edges of the beds of volcanic sandstone, but, although so soft, it

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does not appear to be very rapidly worn away. Large masses of travertine hung from the rocks on the sides of the brook, embedding sticks and other things, but I never saw any organic remains in the fundamental rock. I believe the pool, which is called Ranoo Klakka, to be an old crater; and about half a mile S.E. of it is another similar circular pool, called Ranoo Pakis. The two occupy the extremities of a low ridge, from which the ground slopes gently in every direction, and it appeared to me that the beds had a quâ-quâversal dip from each of the pools. Certainly, on the S.W. side of Ranoo Klakka the beds dipped from it to the S.W. and seemed to curve round it; and at one or two detached points on other sides, I observed a slight dip from the pool. I made the height of the passangerang of Klakka, by the mean of four observations, to be 811 feet above the sea. Ranoo Klakka was said to be 65 fathoms or 390 feet deep. The temperature of its water, at a depth of three feet, was 88°, although the air in the shade never rose above 87° in the hottest part of the day, and at nine o'clock at night was at 79°.

On a little eminence, overlooking Ranoo Pakis, about half a mile from the guest-house, was a small wooden pandopo, that seemed to have been erected solely for the purpose of enjoying the view, which was certainly a most lovely one. About sixty feet below was the still water of the lake, environed by a steep bank covered with dense bush and jungle. From the

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upper margin of the bank, the ground sloped gently in every direction, and was covered with a long green grass with a very broad leaf called alang alang. Towards the south, was a green and fertile-looking plain, beautifully patched with dark woods. This sloped gently towards the southern sea, which could be seen gleaming in the horizon at a distance of fifteen or twenty miles, with a large shadowy-looking island on the left, called Nusa Baron. Almost behind the spectator, rose the Lamongan, from which a long green slope stretched off into the distance on his left, while some twenty miles on his right front, abruptly rising from a crested ridge near the sea, shot up the noble pile of the Semiru, the loftiest, most perfect, and majestic-looking cone we had yet seen, or indeed ever saw in Java. Its height, according to the Dutch almanack, is 12,292 feet, or rather more than that of the peak of Teneriffe. From the base of this mass, a long irregular ridge of mountains stretched to the north, called the Teng'ger, in which is the volcano of the Bromo. In this direction, the foreground was also broken into abrupt hills of no great elevation, but with lovely green slopes and woody crests; and over all the country near at hand was a beautiful variety of cultivated fields and patches of wood, and untouched slopes of alang alang, with here and there a native kampong, half concealed by its groves of fruit-trees. Everything was lovely in form and colour and glittered in the hot sunshine; while a

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fine fresh breeze from the south tempered the heat, and gave it the feeling of a summer day at home.

The mountains about, although so lofty, and in many places so broken and rugged-looking, had not the grand and stern appearance which the much smaller hills even of Wales or Scotland often assume. Beauty, not grandeur, was their chief characteristic. Volcanic cones are so regular in their shapes, and stand out so much alone as individual objects of perfect form and symmetrical outline, that they give an almost architectural tone to the scenery. They are like noble columns or pyramids, perfectly beautiful indeed, but not possessing the mysterious and awe-inspiring character of a great chain of "many-folded mountains," in the recesses of which the imagination delights to wander, and at times to lose itself. These mountains, too, had all their slopes and even their topmost ridges clothed with wood and green waving grass, except one or two summit cones of cinders and ashes fresh from the craters; and even these, from the effect of distance, looked smooth as if made of sand. Still, if devoid of grandeur and sublimity, the beauty of the scene was perfect, and for the first time realized my pre-conceived ideas of the finest tropical scenery.

We returned to the passangerang at dusk; and after dinner, as I was strolling round the house outside smoking a cigar, a man with a long spear came up to me and began to turn me back with a

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long and earnest oration, of which the only word I understood was "machan," the Javanese for "tiger." Having recourse to Hill's interpretation, I found he was begging me not to walk in the dark, as tigers were very abundant all round, which he forcibly assured us "eat men;" and that they had been known to come even into the house. We found in the front verandah a guard of four spearmen, keeping watch against such an occurrence. We thought they were joking, till we found that none of themselves went a few yards beyond the house without a torch. One man going down to bathe in the pool just below, another accompanied him with a torch; and we observed four men coming up the road with two large torches, who, they said, were coming home from their work to the kampong hard by. We still thought these fears a little exaggerated; but that very night a man was killed by a tiger at a village about two miles from us, as he was going out to his work before daylight with two others. His body was recovered the next day.

Nov. 13.—We were out with our guns at the earliest dawn—Captain Blackwood and I in one direction, Evans and Hill in another. Immediately beyond the fences of the kampong we saw both wild pigs and jungle-fowl, and in half a mile had killed one of the former and a brace of the latter. Had we known the country and the "lie" of the covers, and had a dog or two, we might have had splendid sport; but our attendants did not understand the

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affair, and were only useful in carrying the shot-belts and game-bags. We pressed into our service the first two men we saw in the next village we came to, after shooting the pig, and sent them to carry it up to the house, a command they obeyed without the slightest hesitation. The country we walked across was slightly undulating, only half cultivated, and that in rather a slovenly fashion, but remarkably pleasant, with just enough difficulty to render the walk interesting. Here and there were untouched thickets of wood, or old coffee plantations, imperfectly fenced, looking just like an English cover, and now and then we came on a belt of alang alang, a long, coarse, broad-leaved grass, rising above our heads, very close and difficult to penetrate, and cutting the hand if drawn through it rapidly. Small brooks and water-courses, with beautiful clear running streams, were numerous; and we passed one or two small kampongs, or hamlets, in our morning walk, near which were fields, or gardens, more carefully cultivated than elsewhere. The weather was cool, fresh, and delightful. On our return, we found Evans and Hill had fallen in with the fresh tracks of one or two tigers in a coffee plantation they had visited in search of pigs. There is, however, no danger from these animals in the day-time, when they rarely, if ever, shew themselves, unless hunted up. In the afternoon I accompanied Evans and Hill to their ground, and saw some pigs. We passed through a secluded and picturesque vil-

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lage, surrounded by very extensive coffee plantations, with broad green lanes overshadowed by trees and the most lovely rural scenery. Evans and I, having missed Hill about sunset, made homewards by a straight course across the country, and just before it got dark found ourselves on a broad rise of gentle elevation, covered with alang alang, and crowned by a few trees, which I recognised as the borders of Ranoo Pakis, the most noted haunt of tigers in the whole country. Cocking our guns, however, we pushed through the grass, that was often three feet above our heads, for about half a mile—not without a feeling of half hope, half fear, of at least hearing the roar of a tiger or his rush through the jungle. Nothing of the kind occurred, however, but I have no doubt that a party well provided with a few good horses and dogs, and a spearman or two, might have most excellent sport in this neighbourhood, whether at jungle fowl and deer, or wild pigs and tigers. The jungle fowl we killed to-day, although having a great resemblance to our barn-door poultry, were most beautiful birds, the cock especially, whose plumage is almost entirely a dark glossy green, streaked here and there with yellow. The cock, too, is excellent eating, and far superior to the hen. They are to be met with in the morning and evening at the edges of the coffee plantations; they run very rapidly, but if suddenly sprung out of a tussock of grass, they rise splendidly with a flight intermediate between that of a pheasant

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and a grouse. Pig shooting is tame work, but spearing them on horseback, as they do in India, as Captain Blackwood described to me, would, I have no doubt, be admirable sport, and the country is well adapted for it—a succession of covers and open undulating plains. It would, however, require a larger breed of horses than they now have in Java, or the rider would be buried in the grass if he came to a patch of alang alang, and would not be able to see the chase. We did not hear of any Dutch gentlemen who were sportsmen; but had Java continued in the English possession, I have no doubt it would ere this have been celebrated for its field sports. Pigs, especially, are so numerous as to be a perfect nuisance to the inhabitants, who, as Mahomedans, do not eat pork, but are delighted to see them killed; while of tigers there is no lack, from all we heard, even in our short excursion in the country. Bears are to be found, and wild buffalo, the most dangerous of all animals to meet with, and far more dreaded by the natives than the tiger himself. The rhinoceros is confined, I believe, to the most wild and uninhabited parts of the southern coast in the native dominions, but, as I was afterwards informed, was sometimes to be found in the highest part of the volcanic mountains of the interior.

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CHAPTER II.

RIDE FROM KLAKKA TO LAMAJANG—BEAUTIFUL SITUATION OF THE PASSANGERANG—SUMOWIJOYOH RONGO DI LAMAJANG—DISTURB A TIGER—RIDE TO TAMPA—LAUT KEDUL, OR THE SOUTHERN SEA—"GAMĔLANG," OR NATIVE BANDS—DANCING GIRLS—ASPECT OF THE MOUNTAINS—DAILY THUNDER STORM IN THE AFTERNOON—COMMENCEMENT OF THE N.W. MONSOON—RIDE TO KEDIMANGAN—LUXURIOUS LIVING—MAGNIFICENT FORESTS ON THE MOUNTAINS—ARRIVE AT LODO OMBO—ASPECT OF A MOUNTAIN VILLAGE—MANNERS OF THE PEOPLE MORE INDEPENDENT THAN IN THE PLAINS.

November 14.—HAVING sent off the coolies with the baggage before daylight, we started ourselves at six o'clock on horseback, with a similar train of attendants to what we had before. We travelled towards the south, and in about a mile passed the large village or town of Klakka. This consisted entirely of native houses, in two or three kampongs, surrounded by bamboo fences eight or ten feet high. Soon after, we crossed one or two fine brooks running towards the south, in which direction the country gradually declined. It was still, however, agreeably undulated, and broken occasionally into small hills, crowned with woods and surrounded by sloping grassy plains. At one spot we saw, at the edge of a wood, jungle-fowl, peacocks, pigs, and

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deer altogether, but they took alarm at our cavalcade before we could reach them. We had observed, at about every two miles, strings suspended across the road from one tree to another, with a bunch of grass in the middle, and on inquiring the meaning of it, found it was to notify that European or other important personages were travelling, and the roads were to be kept clear in consequence. One of our attendants told us that one effect of this was to clear the road of robbers, who are by no means unfrequent in these parts, but confine their attentions to Javanese or Chinese, whom they sometimes murder as well as plunder, but never venture to attack Europeans. As the Dutch Government entrusts almost all the native police and internal regulations to the native authorities, they do not interfere in these matters, except in the case of a European suffering injury. The consequence seems to be a good deal of insecurity, both of person and property, among the native population. We passed to-day a considerable number of bullock-waggons, laden with paddy and other things, travelling towards the north, probably to Probolingo. We also met a considerable number of travellers of both sexes, generally on horseback. We observed that as soon as we came in sight the men would dismount, pull off their hats, and stand uncovered, or squat down as we passed; while the women drew off the road, behind a bush, where they were supposed to be out of sight. This extreme respect to

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superiors is universal in Java, and is paid to their own chiefs as well as to all Europeans.* Sitting down on the ground is the proper posture of respect, and an inferior, in moving in the presence of a superior, bends his body, and crouches along till he can find a place for squatting down.

We changed horses after rather a long post, and in four pauls more arrived at Lamājang, a little before ten o'clock. This is a moderately sized native town, standing on a plain, which, from the rapidity of the brooks, is evidently still some height above the sea. The town, indeed, is intersected by a precipitous little ravine, about thirty feet deep, in which was a rapid brook, and over which there were several bridges of wood.

We traversed one or two streets, or rather roads, bounded by the fences of kampongs, and overshadowed by groves of cocoa-nuts and areca-palms, and then came on to the central square. This seems an universal feature of all the Javanese towns; it generally contains three or four acres of beautiful turf, shaded by noble banian trees, of a species called "warrīngen," which are almost held sacred by the inhabitants. This square is bordered by the

* As in Java, so in the Friendly and Society Islands, uncovering the shoulders and squatting down is the highest mark of respect that can be shewn. See Sir S. Raffles's History of Java, Mariner's Tonga Islands, Ellis's Polynesian Researches, &c. &c. In Tonga, if an inferior meets a chief upon the road, he lowers his burden and sits down till he has passed.

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residences of the principal people, and the roads diverge from it in every direction.

As soon as we came on the square or "alang" of Lamājang, we turned short to the right, and galloped by a broad road of beautiful green turf, to the passangerang or guest-house, about a quarter of a mile distant. Here we found the native chief, whose title was Rongo, waiting to receive us with a troop of attendants, and as soon as we had dismounted, he led us to a table covered with fruits and cakes, while tea and glasses of cocoa-nut water were handed to us. This, however, was merely a whet, for as soon as we had bathed and changed our dresses, we found a smoking hot breakfast awaiting us, of curries, pilaus, beefsteaks, spatch cocks, and a superabundance of other dainties, served up in excellent style with glass, plate, blue finger-glasses, and snow-white napkins; in short, all the luxuries of the East mingled with the elegancies of the West. The Rongo, after asking permission to be seated at table in our presence, and partake of his own entertainment, did the honours in excellent style.

This place was, if possible, still more pleasant and delightful than that of Klakka. The house, however, was smaller, and had only three bedrooms, with two others in a detached building, a little removed from it. It stood a little outside of the town, on the edge of a grassy bank that sloped down into a small valley, through which the brook ran before it entered the narrow ravine below. This

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valley was about a quarter of a mile wide, one entire meadow of the most beautiful green grass.* The banks of this valley were steep green slopes, about thirty or forty feet in height, with broken skirts of wood. Over this beautiful foreground rose the noble and symmetrical cone of the Semiru, smoking away occasionally in grand style, with a lower but still lofty and rugged range of mountains stretching away to the north-west, and another broken ridge sloping to the sea on the south. The house was raised on a wooden platform, and built entirely of bamboo, except the beams, floors, and corner posts, the workmanship being remarkably neat and strong. The central room was open at both ends, from the front verandah to the back, but could be closed at pleasure by cane mats or blinds, that were kept rolled up under the eaves of the roof.† Over the brook, in front of the house, was a small bamboo shed for a bathing house. The water was shallow, very rapid, running over a bed of lava pebbles, and its temperature was only 72°, which appeared intensely cold to our feelings, the air now being 85°. It must come very rapidly from the mountains be-

* The rich greenness of the grass in the interior of Java quite equalling that of England, is a rarity in a tropical country, and it was peculiarly grateful to our eyes after being accustomed for two years to the living hay of Australia.

† There is a great analogy between this kind of house, or the open pandopo of the Javanese, and the houses of the Tonga Islanders, as described by Mariner. (See Vol. ii. p. 250.)

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yond, as the height of this spot is only about 160 feet above the sea.

About two o'clock in the afternoon the mountains became suddenly covered with clouds, that soon spread down over the plains, and we had some sharp thunder and lightning, with very heavy rain, till 4 P. M., when it cleared off. The thermometer sank to 75° after this shower. Captain Blackwood and I then took our guns, and walked out shooting, taking three men with us, one of whom spoke Malay. We crossed the brook, which was not much more than knee-deep, and ascending the opposite bank, came on some large paddy-fields, which were now all dry and in stubble. Beyond these were some old coffee plantations, and a broken country full of little valleys with rattling brooks, small coverts and brakes, with grassy spaces intervening, and here and there delicious green lanes, with lofty trees arching overhead. There were some tobacco-fields also, to which the jungle-fowl seemed partial, and in which we shot two or three. After a delightful walk of two or three miles we returned. In coming back we agreed to take opposite sides of a coffee plantation, just before dusk, and on rejoining my worthy chief, I found he had been very near having an adventure. In beating a small hollow full of jungle and dense foliage, he heard a great growling and grumbling close to him, and a rustle among the tall grass. His attendant immediately called out, "machan" (a tiger), and

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looked very serious, and when we met he commenced a long and earnest story to the other two men who had accompanied me. But for a little incident like this, and for the tropical appearance of the palm-trees, bananas, and other vegetation, I could hardly realize to myself that I was in Java,—Java the hot, the deadly, the terrible. The cool freshness of the air, the short, springy, fresh green turf, the green lanes with footpaths and cart tracks, the ditches and fences, with here and there a gap, as if broken down by a sportsman, the old coffee plantations with their lofty trees and grassy alleys among the underwood, reminded me rather of shooting in a mild evening in September in some of the remote districts of England, among half-neglected covers and preserves and imperfectly cultivated fields. This part of Java, indeed, is remarkably healthy, and is visited on that account by invalids from Sourabaya and the hot towns of the muddy and swampy north coast.

On returning to the passangerang a little after dark, we found the Rongo waiting to welcome us to a dinner as luxurious and well cooked as the breakfast he had given us in the morning. On relating our tiger story to him, he regretted that it had not happened in the morning, as the tiger would not have moved far from the spot during the day, and we might have assembled some forces for a hunt. He assured us he had but to beat a particular measure on his gong, and two or three hundred spear-

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men would turn out ready and eager for the fray. The animal, however, was sure to shift his quarters during the night, so that the next morning would be too late to look for him.

The Rongo was a middle-aged man of a portly appearance, with an intelligent, good-humoured countenance, and very amiable manners. He appeared fond of a joke, and could we have conversed freely with him, would, I think, have been an excellent companion; but as all the conversation had to be interpreted by Hill, it could not be very brisk. He seemed much interested with respect to England, and was never tired of asking questions about it. He wanted to know the amount of the army, the number of the fleet, how many colonels there were, under which title he included post-captains, the amount of their pay, and similar matters. He seemed amused with the idea of a "Rajah parampouan," or woman Rajah, although acquainted with the fact of our having a Queen and her name, and asked how many children she had. He evidently could not understand why Prince Albert was not King. He asked about the probability of war, and I think was desirous of ascertaining whether there was any chance in the future of the English recovering possession of Java. We assured him that there was none, as we had more territory than we knew what to do with.

There still seems to linger a hope and expectation on the part of the native inhabitants, and a

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kind of fear on the part of the Dutch, that England has her eye on Java, and will take the first opportunity of getting possession of it.

While we smoked our cigars after dinner the Rongo was chewing seri, or beetel as it is commonly called, an attendant always crouching behind his chair with his seri box ready to hand to him. This was of silver, about eight inches by five, divided into compartments for the various ingredients. In using it, a leaf of the beetel pepper, quite green and fresh, is taken, and a little lime mixed with water smeared over it, a slice or two of areca-nut is then sheered off with a peculiar instrument for the purpose, and the whole is wrapped in some finely shred tobacco, and popped into the mouth. It is by no means an elegant practice, as the lips are continually smeared with a red-coloured saliva, looking almost like blood, and the quid of tobacco is often kept half protruding from the lips, and before it is thrown away the teeth and gums are generally well rubbed with it up and down and far back. It is universally used by both sexes, and looks especially disgusting in a woman till the eye gets accustomed to it. The Rongo also allowed us to examine his kriss, which, although not so handsome as some we saw, was as usual much valued as an heir-loom, having been in his family for several generations. The sheath was of wood, with a thin case of embossed gold, and a large curiously-shaped mass of a black and white wood for the head, which he told us was

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very expensive. The blade was rough and rusty-looking, the fibre of the iron plainly appearing, as it is never allowed to be polished, the handle small, ornamented with gold and a few small diamonds. There is no guard, the expansion of the base of the blade serving that purpose. Different krisses are figured in Sir Stamford Raffles's work, and in Crawfurd's Indian Archipelago. They are poor affairs considered as weapons, and could only be of use against a man off his guard.

About nine o'clock, after seeing if we were satisfied with our apartments, and inquiring if he could do anything more for us, and after having arranged our plans for the morrow, the Rongo took his departure, with an escort of five or six men, to his own house, by the side of the great square. We found a guard posted in our verandah, of three or four men, with tall spears, and on retiring to my bedroom, which was one of the detached ones, I found two spearmen there, preparing to take up their quarters in the small verandah before the door. I believe, however, all this was a mere guard of honour, and not at all necessary as a measure of precaution.*

* Many of the details in the foregoing pages, as in those that follow, are no doubt trivial enough, and to any one familiar with the country, would seem not worth recording. To me, however, the whole country, and the manners and customs of the people were so new and interesting, that I hardly knew how to select from the mass of daily incidents those which were most descrip-

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Nov. 15.—We set off this morning with a single attendant each, and one to carry my barometer, in order to visit the shore of the southern sea, which was not more than about ten miles distant. We passed through partially cultivated ground for three or four miles, and then got out on a small open plain of a barren appearance, on which were large spaces of bare lava pebbles and volcanic sand, brought down apparently by the floods of a considerable brook, which came from the direction of Semiru. This brook wandered over the plain towards the east, without any regular bed. Beyond this plain, the road passed for nearly a mile through a portion of forest, apparently untouched, the primitive forest and jungle of the country. This was very magnificent. The road leading through it looked like an avenue, and although of a good width, probably twenty yards, was completely over-arched by the lofty boughs. Stately forest trees, of great height and size, and of many varieties, with straight unbroken stems and broadly-spreading branches at top, were matted below into an almost impenetrable thicket of underwood, one mass of varied foliage, while great creepers wreathed their festoons from tree to tree, hanging here and there like ropes twined round with leaves. Graceful palms, of several species, rose among the woods, and drooping tufts of parasitic ferns clung to the branches of the

tive, and trust the reader, to whom they may be familiar, will excuse my prolixity, for the sake of those to whom the country and the people may be as novel as they were to myself.

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trees, producing an effect of richness and profusion in the vegetation that nothing could exceed. Everything, too, was bright, fresh, and glittering with the morning dew. Leaving this magnificent forest, we again got upon some cultivated land, and shortly reached a small village called Tampa, where, at a pandopo by the road side we found tea, fruit, and cakes awaiting us, as usual, the moment we took our feet out of the stirrups. After a slight halt, we rode on to the sea. The country was flat, and very fertile looking, but for the last two miles totally uncultivated and in a state of nature. Here broad spaces of alang alang waved in the wind, or stretched with green alleys and open glades into the recesses of the forest, producing the most lovely sylvan scenery. Numbers of peacocks screamed from the summits of the loftiest trees; and deer must, I should think, abound in a country so well adapted for them. The long grass, or alang alang, was not too high to ride through, even on our ponies, though we often could not see well around us when among it. This tract of country looked like a noble park adapted to a tropical latitude.

At length we reached a small pandopo perched on the summit of a cliff overlooking the sea. This cliff was about sixty feet in height, and below, between it and the sea, was a small flat of sand and pebbles scantily covered with grass, and about three hundred yards in width. Through this flat wound a small brook which oozed into the sea,

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through a bank of pebbles thrown up by the surf. The cliff, from top to bottom, consisted of regularly stratified lines of pebbles of lava and black volcanic sand; it had evidently once been beaten on by the sea, and the plain below consisted of its detritus, but this plain was so little above the sea level, that I could not say whether an actual elevation of the land had taken place; or whether the sea had merely become shallower, and at length banked itself out by the action of its own waves. A cart track wound down the cliff, and a bullock waggon and some horses were on the plain below, belonging to a party of natives, who had come for sea bathing.* I set up my barometer in the shade of an old tree, but several of the natives who stood by seemed rather suspicious of my intentions with such an extraordinary looking instrument; and two women crept under the bullock waggon, apparently in order to be out of the way of any explosion that might take place.

The southern coast stretched away on either hand in cliffs and headlands of a greater height than those near us, and it seemed to be perpetually beaten by a heavy surf, of which the spray caused quite a haze in the atmosphere. A few miles to the S.E. of us was the island called Nusa Baron, sur-

* Sea bathing is used by the Javanese as a remedy for sick people in general; but I believe the south sea "laut kedul" is especially looked upon as a restorative with somewhat of a superstitious feeling.

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rounded by steep, whitish-looking cliffs, and covered with dense wood. It is, I believe, uninhabited, and said to abound with snakes and tigers.

As it was now getting hot, we soon cantered back to Tampa, where we found an excellent cold breakfast laid out, that had been sent down by the worthy Rongo of Lamājang. After this the attendants brought us mats and pillows, and advised us to take a siesta during the heat of the day; but as they all sat round us, and continued chattering in a low tone of voice, we found this impracticable, and about two o'clock determined to go out peacock shooting. They took us to a neighbouring wood, and through some old coffee plantations, where there were plenty of peacocks, but they kept on the tops of trees so lofty as generally to be out of shot; Evans, however, brought down one. We soon got knocked up with scrambling through thick jungle in the heat of the day, and returned to the pandopo, all except Hill, who had gone in chase of a deer, and succeeded in shooting one of the kind called "kedang." This was a beautiful little animal of extreme delicacy and elegance of form. We returned to Lamajang by the same road we had come, and on our arrival at the passangerang were saluted by a native band of music, which the Rongo had brought up from his house for our gratification. This band consisted of a kind of fiddle with two strings, with a cocoa-nut covered with parchment for the sounding-board, and several instruments of percussion, both of wood

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and brass. The one was made of small bars of wood suspended on strings over a box, and struck with a hammer, so as to give a sonorous tone. The brass instruments were more various: one or two were made of bars, suspended like those of wood; others of sets of hollow brass basins, as it were, one upright and the other inverted over it;—each set was in a box, in two rows, and tuned so as to harmonize with each other when different bars or basins were struck simultaneously. There were also one or two similar brass hollow instruments of a larger size, and a gong or two.* The effect of the whole, when at a little distance, was really pretty, and the different tunes played, of a lively, irregular measure, occasionally reminded us of Scotch airs. The Rongo took one of the instruments, made of the suspended brass bars, and played a solo. The tone of the instrument was very pleasing and delicate, and the Rongo seemed much gratified with our applauses of his performance.

Just at dark, in walking across the grass from my bed-room to the dinner-room, I saw a small snake gliding before me, and called one of the attendants to come and kill it. This he did with much caution, cutting it in two with a large padang, or knife, for cutting sugar-cane; and on shewing it to the Rongo, he said it was "sakāli jahat," or "very

* Figures of all these instruments may be seen in Sir S. Raffles's History of Java, and Crawfurd's History of the Indian Archipelago.

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wicked," and its bite almost certain death. It was a pale brown above, and greyish white beneath.

We had yesterday expressed a wish to see some dancing girls perform, and the Rongo had to-day provided a set to entertain us after dinner. Accordingly, about eight o'clock, the front of the verandah being spread with mats and dimly lighted up with lamps, we seated ourselves for the spectacle, a large ring of people being squatted on the grass outside. Four girls then made their appearance, their hair ornamented with chaplets of white flowers, their dresses rather gay, with long scarfs round the neck and shoulders, and thin bands of silver round the waist and wrists. They had no pretension to beauty, and only one had any elegance of figure, the rest being plain, dumpy little bodies enough. The dancing consisted of slow gesticulations, bending of the body, and waving and curving of the arms and wrists; in short, mere attitudinizing, in which the only thing exhibited was flexibility of the joints, with an occasional graceful posture or motion. The tallest and best figure was the principal performer, the others merely grouping themselves around her, or occasionally taking a part. It was always accompanied by the band, and sometimes by the voice, one of the performers taking up the end of her scarf, drawing it over her mouth, and screeching forth the harshest and shrillest tones I ever heard from a woman's mouth. We had four scenes, with a pause between each: each apparently represented some

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story, but what was intended we could not make out. No doubt the story or legend was traditional and well known to the people, as the ring outside, and the four spearmen, with their tall glittering weapons, gazed in silent delight, while to us it soon became excessively dull and tiresome. There was nothing whatever indecorous in any part of the representation, although the girls themselves are, by their profession, considered as courtezans.

The Rongo was again very particular to-day in his inquiries regarding England, and particularly as to the Chinese war. He told us that there were Chinese advertisements, or gazettes, circulated among the Chinese residing in Java, setting forth the injustice of the war on the part of the English, and also that they had been signally defeated on all occasions. Seeing me this evening busy writing in a note-book, he immediately guessed that I was writing a book which I intended to publish in England, and begged that I would take down his name and title in full, that it might be known to the English people. I here beg to fulfil my promise, as far as in me lies, and introduce to the reader Sumowijoyoh, Rongo de Lamājang.

The people in this part of the country did not sensibly differ from those of Sourabaya and the neighbourhood, either in appearance or dress. They are of the middle height, or rather under than above it, of a broad and stout make, with large limbs, broad, good-tempered countenances, frequently intelligent,

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but of a grave and sombre rather than cheerful expression. The children are much handsomer than the adults, and the men more frequently good-looking than the women. The habit of filing down the front enamel of the teeth and blackening them, and that of chewing seri, disfigures the adult population in a great degree, as does also the serious countenance they commonly preserve, their faces being greatly improved by a smile.

It appeared to me that their Dutch masters are in the habit of treating the natives of all ranks with considerable haughtiness and reserve, and it was always some time before we could induce them to relax their gravity in our presence. This we generally endeavoured to do by all the jokes and familiarity our ignorance of the language enabled us to perpetrate, and it was often surprising how they improved on a little acquaintance. In fact, their sole study seemed how to please us by any means in their power.

November 16.—We remained quietly at Lamajang to-day. The morning was most lovely, all the mountains being clear and sharply-defined, without a cloud in the sky. Semiru was particularly fine as he puffed forth from his summit huge volumes of white smoke, looking like steam. This formed occasionally a great canopy over the cone, and then portions of it successively curled off till all disappeared. Between two and three o'clock in the afternoon, however, the mountains had gradually

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accumulated dark masses of clouds that then suddenly spread over the plains and gave us a heavy thunder-shower for an hour and a half. It was now just about the change of the monsoon, which was beginning to blow from the westward along the southern coast, and almost every afternoon from this time we had very heavy rains between two and six o'clock, with thunder and lightning, all the rest of the twenty-four hours being most lovely weather. At five in the afternoon the rain having ceased, we walked down, according to promise, to call upon the Rongo at his own house. He lived on the north side of the square, having a small pandopo on the green before his gate, beneath a row of noble "waringen" trees. As soon as we shewed ourselves on the green, his native band, who were seated in the pandopo, struck up a tune of welcome called "Rajah datang," or "The Rajah is coming," which seems always to be used on occasions of ceremony. Entering the gate we found a large court-yard, not very well kept, in which was a good sized pandopo, and behind it the house, which was small, and constructed entirely of bamboo. He received us in the pandopo, and offered us tea, fruit, and cakes. On one side of the pandopo were eleven large spears standing in a rack, being the number of his guard as he informed us. Near them were two great chests, which he told us contained 5,000 rupees in copper, being the amount of land-tax which he has to collect and transmit

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monthly to Probolingo. This would make 3,444*l.* sterling per annum. The population of his district he stated at 25,000 souls, including, I suppose, not only the town of Lamajang, but the adjacent villages. The daily wages of a man here were 5 duits, or not quite ⅛ of a penny English, and for this he could live very well. Rice is from 3 to 5 duits the catty, which is about 1⅓lb. English, and plantains and other fruits cost little or nothing. These are the chief food of the natives, the rice being flavoured occasionally with a little salt fish or stewed vegetables. Of clothing, the labourer requires little for ordinary wear, beyond a wrapper, and in a day or two he can cut bamboo enough to make a very sufficient house.

A Dutch Assistant-resident resides at Lamajang. He had hitherto been absent, inspecting some roads or bridges at a distance. Hearing he was now returned, we sent in, as he lived next door to the Rongo, to inquire if he was at leisure to receive us; but as he was taking his afternoon siesta, we merely left our compliments, and having finished our chat with the Rongo, returned to our quarters.

November 17.—As we had rather a long and uphill stage before us this morning, we directed the coolies to start with our baggage at three o'clock, but whether from fear of tigers, or other causes, we did not get them fairly under weigh till daylight, when, after a slight refection, we set off ourselves at half-past six. Our route was about N.W. towards

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the mountains. The road led first of all through a flat country, but twisted about a good deal, apparently to avoid the brooks and water-courses, which were numerous and rapid. We shortly began to rise onto some low undulations, from the tops of which we got gradually more and more extensive views over the plain. The road was almost always a broad expanse of beautiful green turf, with just a cart-track in the middle, and noble trees growing on each side, bordered sometimes by fences and cultivated ground, sometimes by patches of untouched forest. After riding about a couple of hours we came on a troop of horses and men, standing and lying under the shade of a spreading tree that stood out in the centre of the road. This was the Dumang, or head man of the village of Kandangan, come to meet us with fresh horses and attendants.

About three miles beyond this we came to his house, at a place called Kedimangan, where, leading us into the court-yard, we found the usual table spread in the pandopo, with fruit and cakes, and servitors walking about with basins and water to dip our hands and face, and then immediately handing us tea; and, as if all this were not enough, as soon as we seemed to have had sufficient fruit, they cleared the table and covered it again with twelve or fifteen different dishes of poultry and meats and rice, in curries, pilaus, and soups, exquisitely cooked, and smoking hot. We found, indeed, the good Rongo of Lamajang had taken the

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trouble to send on over night his own cook, a Bengalee, and I believe part of his plate and table furniture that we might be suitably entertained. As soon as we were seated, the Dumang squatted down on the floor, in the front of his dependants, but we begged he would join us at table, which he did with some hesitation. As we finished, the dishes were passed to the people on the floor, between twenty and thirty in number, who broke into small parties around them and helped themselves with their fingers. It was really a most luxurious method of travelling; for, before we could tire one horse, we found another with fresh spirit awaiting us; and before we had time to think of being thirsty, we came upon some table spread in the wilderness, as if by enchantment; as to being hungry, we could not acquire the sensation. Moreover, as the entertainment was always ostensibly provided by the head man of the place, we could not affront him by offering payment for it; nor was it much expense to him, as the materials were furnished by the contributions of the different villages and people under his government, whom, perhaps, we never saw, and certainly did not know, and therefore could not remunerate. All we could do, was to pay our coolies and attendants for themselves and their horses.

I was surprised, on opening the barometer, to find we had already risen so much above Lamajang, the two observations of this morning giving a differ-

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ence of level of 1247 feet, making Kedimangan 1412 feet above the sea. When we reached Kandangan, indeed, which was merely a few small houses on a rising ground about a mile farther on, we found the view very extensive, looking over all the undulating forest land below, and the plain of Lamajang with the southern sea and the island of Nusa Baron in the distance. A little beyond this the road divided into two, and became much narrower and steeper, among some very extensive coffee-plantations. We here saw two tiger traps, long, low, narrow boxes made of stout posts and young trees, with a falling door at one end which drops on the bait being touched, which is hung up inside at the other. It was, in fact, nothing but a large mouse-trap. A good sized tiger would barely have been able to crawl in, and I should have thought would have been much too cunning to enter. They are, however, sometimes caught in them, when they are killed with spears thrust between the trees of which the trap is formed. For two or three miles, we now rode along a narrow lane with very high banks over an abruptly undulating country. The banks were covered with beautiful plants, among which we found a species of wild raspberry, some of the fruit of which was ripe but rather insipid. This deep lane reminded me of those of Devonshire, except that the vegetation was more exuberant. We passed one or two small detached cottages, but soon got above the coffee-grounds, and the lane began to

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dive into deep and precipitous ravines with brawling brooks, and to rise into narrow winding ridges, up the crests of which we climbed by narrow slippery foot-paths, and soon became entirely engulphed in the magnificent untouched forests that clothed the mountain's sides. Many of the trees rose to great heights before they branched, when they spread into widely arching boughs clustered with thick foliage; their stately trunks were wreathed with large rope-like creepers that dropped from the boughs in thick festoons of leaves, tapering below into long trailing pendants gently swinging in the breeze. These were high above our heads, while all below was hidden by clusters of bamboo and groves of mountain plantains, matted together and sometimes swallowed up and buried by heaps of ferns and huge broad-leaved succulent plants, and an infinite variety of climbing weeds into solid piles and mounds of the rankest vegetation. The elegant tree-ferns, more tall and slender than those of Australia and Van Diemen's Land, seemed to love the seclusion of the deepest and most precipitous ravines. Sometimes, when the crest of a ridge expanded a little and became more level, the road passed through large groves, consisting entirely of bamboos, with little or no under-growth. These, rising in great clusters, as if from one root, spread outwards and upwards in every direction, with gentle curves, and crossing their tapering stems above our heads formed lofty natural aisles, like cloisters with groined gothic

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arches leading in every direction. As the road wound through these, the effect was most singular and most beautiful. Gradually as we proceeded, however, the path became narrower and more precipitous till it often resembled a mere ditch, just wide enough for the horses to tread in, and though the forest was often so dense that we could hardly see a few yards on either hand, we could sometimes perceive we were tracing the summit of a very narrow ridge, the ground pitching rapidly down on both sides into ravines, of which the depth was quite undistinguishable from the density of the wood. What seemed to me most singular in such a lofty, broken, and precipitous country was that we could not see a bit of stone. In one of the lower ravines, indeed, where we crossed a considerable brook, there were large blocks of basaltic rock, apparently washed down by floods; but on these narrow ridges, of which the edges were so steep that we were often obliged to dismount to climb up them on foot, not a particle of hard rock was to be seen. All was dark brown soil, or loam passing into clay. It was of the richest appearance, and many feet in thickness, as might be seen occasionally where the rains had worn a gully in the road. Here and there we passed one or two men repairing the road, having, seemingly, just begun to do so on our account. All they could do, however, was merely to shovel some loose earth or clay into the deep holes, which seemed to have been worn or dug into the soil by horses' hoofs, as

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they passed up and down. The path was in some places, too, so steep and slippery as to render it difficult either for man or horse to scramble up it.

About one o'clock it began to rain heavily, accompanied by thunder and lightning, but so dense was the vegetation overhead that it was some time before we got wet. When, however, the trees and leaves were once thoroughly saturated, there was no escaping it. At two P. M. we reached a little shed, where we found fresh horses awaiting us under the command of the Bukkel, or chief officer of Lodo Ombo, the mountain village to which we were proceeding. He had not, however, provided a relay of coolies, owing to some mistake in the orders received, so that we were in some doubt whether the set who were now toiling up the mountain side with our baggage would be able to bring it on that night. However, we mounted our fresh horses, and with them proceeded more merrily, those which had come with us thus far being nearly knocked up. We still had some long and very steep ascents to make, and occasionally a rapid descent across a ravine, in order to gain another ridge, but presently the road became more level and broader, and at length we emerged from the lofty matted forests, and came on a more open country, with bushes like willows, and fine pine-like trees, that I afterwards learnt were casuarinas. We then traversed a small mountain plain, or shelf, with some grassy hollows and fields, and a few cottages and gardens; and as we were

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enveloped in clouds, and it again began to rain heavily, we put our horses to a gallop, and at four P. M. reached the village or hamlet of Lodo Ombo.

This was a poor little place, very different in appearance from the villages of the plains; the houses, instead of bamboo, were formed of planks very roughly put together, and their edges by no means fitting well. The roofs were generally thatch, and the doors, windows, and chimneys very poorly contrived, the whole house looking smoke-dried and dirty, and the ground of the kampong very muddy. The passangerang, or guest house, was a small boarded house, with a narrow central room, and a dark little cabin on each side for a bed-room. The roof was not water tight, nor were the doors or the walls weather proof. As it now poured with rain, and we were wet through, and the wind felt raw and cold, we were by no means comfortable. After a little time, however, we got a fire in a sort of cook-house adjoining, where Hill's servant, Yacoub, sat wrapped in a blanket, and shivering over the flame, the very picture of misery. It was the first time in his life he had ever felt cold. We also got a fire made in a large earthen pot, under a shed, where we dried our clothes. The thermometer during the day time did not sink below 65°, but it certainly felt very cold, and we longed for the arrival of the coolies with the baggage, that we might get on some cloth dresses. Our fare also seemed very meagre, after the luxurious living of the plains, as it consisted

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principally of some tough lean fowls and some half cold potatoes. At this altitude, potatoes, peas, and other European vegetables flourish in abundance, and are of excellent quality. The people, with much the same colour and cast of features, were a taller race than those of the plains; their manners also were more free and familiar, and although perfectly civil and willing to oblige, they had a greater air of independence than we had observed anywhere below. From this it appears that mountains even in Java exercise their usual influence on their inhabitants, and give a taste of freedom even to the servile Javanese.

The Bukkel, or head man of the village, took a great liking to some cherry brandy, of which we had brought a bottle with us, and by no means required any encouragement to take his share of it, or to pass it round to his attendants, who equally approved of it. A little before eight o'clock the coolies arrived with our baggage to our great satisfaction. They were fine stalwart willing fellows, and did not seem much knocked up with their long and heavily laden march up the mountain. I also got my barometer, and from observations made that night and the next morning, I calculate Lodo Ombo to be 6,413 feet above the sea.

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CHAPTER III.

EXTREME COLD OF 50° FAHR.—CLIMB UP THE MOUNTAIN —VIEW FROM THE IDER IDER—THE SANDY SEA AND THE BROMO—WONOSARI—TOSARI—DESCRIPTION OF A MOUNTAIN HOUSE—VIEW OF THE ARJUNO AND THE PLAIN OF SOURABAYA—RIDE DOWN TO PAKIS—OBSEQUIOUSNESS OF THE WIDONO—RUINS OF DJAGO AND KEDAL—RIDE TO MALANG.

Nov. 18, 1844.—I was awoke this morning before daylight, by the feeling of extreme cold, although the thermometer, in the open air, at the earliest dawn, did not sink below 50°. The sunrise was magnificent, from the gorgeous colours that spread over the upper surfaces of the clouds, a little below us. These were, however, too thick to allow us to see any of the lower country. We found Lodo Ombo to be at the head of two saucer-like hollows, on a ledge of the mountains, which on one side plunged steeply down into the clouds, and on the other rose into broken ridges and pinnacles that we had yet to climb. The hollows seemed well cultivated, with gardens of vegetables and a few fields of grass, and here and there a scattered house or shed apart from the kampong, (or "dasar," as I believe a village is called in the mountains). This "dasar" was surrounded by a rude fence, entered by one gateway.

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After a cup of tea and a piece of a dried up fowl, we stowed some cold potatoes into our pockets, and set off. We climbed right up the hills at the back of Lodo Ombo, by a very steep zig-zag path, and soon got above all the drifting clouds into the clear upper air. Here we crossed some excessively narrow ridges, between profound ravines, of which we could not see the bottom for the woods that covered their sides. At one place the path was not more than four or five feet wide, between two precipitous slopes, the narrow heads of two dark ravines that wound away down the sides of the mountain on either hand, into valleys that were full of boiling clouds. These ravines were very numerous, and separated from each other by equally numerous winding knife-edged ridges, each crested with a row of tall and noble trees, like lofty pines. By eight o'clock, however, we had got above even these, and came out on some summits, covered with nothing but short coarse grass.

Arrived at a level ridge that stretched out on either hand, and seemed nearly the highest ground about us, we turned to look over the country we had passed. On our left hand lay the northern or Java sea, with the islands about the eastern end of Madura dimly visible. On our right was the great Indian Ocean, and the island of Nusa Baron spread like a map before us, but still misty with the morning haze. Due east of us rose other mountains, peak behind peak, stretching towards the eastern

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end of the island, while between us and them lay a valley running from one sea to the other, in which were Klakka and Lamajang, and in the centre of which rose the cone of the Lamongan. This hill, which we had at first so much admired, we now looked down upon, so that had its crater been wide enough we could almost have seen to the bottom of it. It really looked quite insignificant, with its tiny jet of smoke, when compared to the perfect cone of the Semiru, which we could see on our right, still towering above us over the nearer peaks and ridges, and rolling forth at intervals huge volumes of smoke and steam. Below our feet lay the mountain-sides, that looked like a net-work of ridges and ravines, all winding, radiating, and sub-dividing downwards and outwards in seemingly inextricable confusion. Not a single smooth or continuous slope could be seen; nothing but steep precipitous furrows and sharp jagged crests, the latter crowned with a feathery-edge of pine-like casuarinas, the former dark with impenetrable wood, till both sank almost indistinguishable among the magnificent forests of the lower slopes. The sea and the plains were partially obscured by creeping clouds and mists, gradually dispersing; while across the bosom of the distant mountains stretched those horizontal bars of streaky cloud, so characteristic of morning among mountain scenery.

Noble as was this prospect, a new surprise awaited us when, advancing a few steps, we

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climbed a grassy knoll, on the side of which we had stopped to admire it. We now found ourselves on the bank of a curvilinear precipice, 1,000 or 1,200 feet deep, the wall of an ancient crater. This wall, which was nearly circular, embraced a space of fully five miles in diameter, in the centre of which rose a mound, composed of an agglomeration of small cones and craters, 600 or 800 feet high. One of these orifices was still active, though only giving forth smoke at the present moment.

The space around this central mass, between it and the wall on which we stood, was a smooth surface of dark brown sand, and is called "laut pasir," or "the sandy sea." On our right, or towards the north, the great bounding wall was broken down over a considerable space, the remaining fragment not being more than 200 feet high; but towards the left, it swept round for several miles, with a height of nowhere less than 1000 feet, and appeared to form on the inside an absolutely perpendicular precipice. Its top was rugged and broken, and often very narrow, the grassy slope on the outside being excessively steep, generally too much so for any one to climb up it. We stood on nearly the highest point of this narrow ridge, at a height above the sea of 8,241 feet, according to my observation. This point is called the Ider-Ider. The active volcano in the centre is called the Bromo,* which name is

* Bromo is the ceremonial Javanese word for "fire," the ordinary word being "guni."

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sometimes applied to the whole mountain mass forming the eastern end of the Teng'ger. In order to descend with our horses into the Sandy sea, we turned to the left and rode along the summit of the ridge, traversing sometimes almost knife-edged crests, merely wide enough for the horse to tread; coasting sometimes round projecting buttresses with dizzy corners, on a ledge that seemed to overhang the precipice, or climbing up and slipping down sharp ascents and descents where the wall was broken by a gap, or rose into a higher peak than usual. Still we saw no rock, not even a fragment of stone; the sharpest ridge, the steepest bank, the very face of the precipice itself, where it was visible, seemed all soil or loam, turning in the beaten path to a slippery clay. This seemed the strangest circumstance to me, and attracted my attention even from the magnificent scenery around. I could not understand why it had not been all worn down or washed away by the rain long ago. No doubt great degradation has taken place, but this is chiefly on the sides of the mountain, as shewn by the multitude of ravines, with their narrow dividing ridges. The very narrowness of the present crests of these ridges, and the steepness of their sides, joined to the clayey nature of the soil, shoots off all the rain into the existing gullies, and any great destruction can only take place now, when these are worn so deep and so far back as to undermine the wall that separates them from each other, or from

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some other hollow. The coarse thick grass also now protects much of the outer slopes.

As I carried my barometer to-day myself, and the ponies seemed by no means so sure-footed as mountain horses usually are, I walked a good part of the way along the summit of the ridge, which we traversed for several miles, until we had gone about a third of the way round the interior "Sandy sea." It then became so far degraded and lowered, and the inner slope so far changed from a precipice to a steep bank, that by means of a zig-zag path the descent became practicable. At this part of the Sandy sea, where we descended into it, which I think was on the south-western side, the bottom of the great crater had gradually risen to a higher level than on the other, and it was partially covered with grass. As we proceeded however, to ride back again along the Sandy sea, at the foot of the precipitous wall, of which we had just traversed the summit, the grass disappeared, and we trod a gently sloping and slightly undulating plain of black volcanic sand, pretty firmly compacted together. We could now perceive that the great wall of the Ider-Ider was not absolutely built of soil or clay, as thick beds of stone shewed themselves in the face of the precipice, capped, however, by 60 or 70 feet of what appeared to be loose earth. These beds seemed to be horizontal in the face of the precipice, but no doubt dipped outwards down the flanks of the mountain, of which dip occasional

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indications could be seen in projecting buttresses. Here and there the rock appeared columnar, and from some fallen fragments which lay upon the plain, I judged to be a heavy subcrystalline porphyritic lava or basalt. One half or more of the height of the wall was an absolute precipice, with a few casuarinas growing on projecting ledges, but the lower half was formed of a steep talus covered with long grass and occasional skirts of wood.

The conical mound which rises in the centre of the Sandy sea,* and occupies almost half its width, is composed of a number of conical or dome-shaped masses of ashes and sand, apparently of very different ages, as some were covered with thick grass and old trees, others with scanty woods of young trees, while others were still bare. All these, except the most recent, were furrowed by small gullies radiating from the summit, and subdividing as they descended, producing on a small scale an exact representation of the outer slopes of the large mountains themselves. Craters, more or less worn down, might be seen on the summit of these mounds, but generally only their summits were at all distinct, all their lower slopes uniting into the common mass. The south side of this assemblage of hills seemed the oldest, and the vent at present active is on the

* This name of "laut pasir," "sea of sand," is, like many native names, a very fanciful and not a particularly appropriate one; its extent by no means resembles that of a sea, and being on all sides bounded by a steep wall of rock, it looks even less than it really is.

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north side. On approaching it, every trace of verdure disappeared for half a mile, or a mile, around it. Small heaps and mounds of ashes and powder covered all the plain, curiously mottled round their sides with concentric bands of dirty reds, whites, and yellows, but the general colour was dark grey. Channels worn by the rains traversed these in every direction, and the water seemed to lodge in flats at the foot of the outer wall on the north, which was therefore the lowest part of the Sandy sea. In riding to the foot of the active cone I was reminded of parts of the South Staffordshire coal-field, among the great iron furnaces, where not a green thing is to be seen. When we reached it we found a double line of ladders with handrails had been constructed, so as to make a regular staircase to the brink of the crater, a height of three or four hundred feet. The present crater is a yawning funnel-shaped hole, about 300 yards wide above, narrowing to perhaps 50 or 60 below, and being probably 100 yards in depth. The bottom was circular, smooth, and solid looking, but on one side was another funnel-shaped hole, 20 or 30 yards in diameter, from which, with intermittent pants, were belched forth volumes of smoke or steam, while a dull continuous roar was heard below, as if a thousand blast furnaces were at work in the bowels of the mountain. There was no lava visible, the whole cone seeming to consist of fine ashes, with a few small pebble-like cinders. Beds of sulphur were

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here and there to be seen on the broken edges of the crater. Near the present orifice was another circular space marked out at the bottom of the crater, quite smooth, and strewed with small pebbles, which was probably an older orifice lately filled up.

A little detached from this cone another conical mound of great regularity rose from the plain, the surface of which was of a reddish colour, and was scantily covered with young trees and small bushes, but neither in this nor on any other part were any lava streams visible. The Bromo is occasionally much more active than when we saw it, exhibiting a bright light, or appearance of flames, as it was described to us, and throwing up hot stones, cinders, and ashes. I observed the barometer at the edge of the crater where we stood, which was its lowest part, and also at the edge of the Sandy sea at the foot of the precipice near the road to Wonosari, and I found that the point of the crater was 516 feet, and the peak of the Ider-Ider 1378 feet above that part of the Sandy sea. Some part of the central mass, however, rose at least 300 feet above the part of the crater where I observed. This active vent was certainly on a small scale, and but an insignificant exhibition of volcanic power. Still, to lean over the crater and listen to the roar below, and watch the power with which the blasts of steam or smoke were blown into the air, afforded the mind a present measure by which to estimate and call up to the imagination the condition of things

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when the whole space of the Sandy sea was one great crater, bounded by walls of which the existing circuit of the Ider-Ider is, in all probability, but the ruin. This, and all the neighbouring volcanoes, seemed to have long ago reached that point in their formation, at which the volcanic forces ceased to have power to eject streams of lava over the lip of the craters, or to burst a passage for them through their sides, and to have gone on for a long time blowing out dust and ashes, which have deeply buried all previous streams of lava, and covered them from sight. This appears to be the condition of Semiru, on the sides of which appear none of the black lava torrents so conspicuous on the cone of the peak of Teneriffe, for in whatever aspect we saw Semiru its cone had the same smooth symmetrical shape and light greyish tint.

The extent of bare black sand between the active vent of the Bromo and the foot of the wall on the north is about a mile, having traversed which, we ascended the precipice where it was about 500 feet in height, by a narrow sloping road, partly cut out of the face of the rock. We then rode another mile and a half, down one of the outside ridges, to a village called Wonosāri, a small place on an expansion of the sloping ridge we were then descending. This we reached a little after one o'clock, and found a very good wooden house, with a garden round it, in which were growing roses and other flowers, and the sitting-room had a large fire-place, on

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which some logs were blazing. We found fogs and mist whirling about the slopes of the mountain below us, and had scarcely got housed before it began to rain heavily, and continued till between four and five o'clock. We found here M. Zollinger, a Swiss botanist, who had been travelling for two years in the mountains of Java, from one end of the island to the other. He was collecting for a Society in Geneva, and also for one in Batavia, and seemed to know the country well. He had ascended Semiru, being one of four persons who have accomplished that feat. It took him two days of great labour, the loose ashes of the upper cone being especially fatiguing. By boiling water on the summit he made it full 12,000 feet in height. P. Melvill von Carnbeé, a Lieutenant in the Dutch Navy, had made it 12,292 English feet by trigonometrical measurement, according to the Batavia Almanack.* M. Zollinger informed us that on the higher mountains of Java, there were few days throughout the year in which no rain falls; that the whole of the forenoon is almost invariably clear lovely weather, but in the afternoon there is commonly a

* See "Almanak voor Nederlandsch Indie, voor het Jaar, 1845. Batavia." A highly creditable production for a colony, in which are many interesting and important articles, and among others, lists of the heights above the sea of all the hills and principal places, together with their geographical position, and the area of the different islands and possessions of the Dutch in the East Indies.

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thunder-shower, which becomes heavier and more protracted during the N.W. monsoon, or from the middle of November to that of March, during which time the rains spread also over the plains. He had been a good deal on the south coast, and described to me some great calcareous formations which ran along it, rising to a height of full 500 feet above the sea, and full of shells and corals, apparently of recent species. This formation is principally developed in the province of Gondung Lagi, and also at the western extremity of the island.*

The slopes of the ravines at Wonosāri are laid out in gardens wherever it is practicable, and even in places where it would have appeared to me to be almost impossible from the precipitous nature of the ground. In these gardens grow excellent potatoes, cabbages, carrots, lettuces, peas, peaches, strawberries, and other European fruits and vegetables, with which the towns on the coast are hence abundantly supplied. I deduced the height of the house at Wonosari from two observations, in the afternoon and morning, and made it 6,217 feet above the sea. In the Batavia Almanack it is given as 6,136 Rhinland feet, which = 6,317 English, differing 100 feet from my estimation, but whether the same spot was used for observation I cannot say.

* These calcareous masses are indicated in the outline geological chart by Dr. Horsfield, accompanying Sir S. Raffles's map of Java.

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Nov. 19.—We did not hurry ourselves this morning, as we had only ten pauls to go to Tosāri, where we were to pass the night. We amused ourselves in watching the fog as it boiled up the steep ravines about us and curled over our heads. M. Zollinger now set me right as to those noble trees which are such a great ornament to these mountain summits, and which I had hitherto taken for some kind of pine. He told me they were casuarinas, which genus, as I had only seen the small casuarinas of Australia with their drooping shrub-like branches, I had no idea ever assumed such a stately appearance. At eight o'clock we set out, returning first of all to the Sandy sea, by the road we had come down from it yesterday. On reaching it we turned to the right, and proceeded for two or three miles to its western side, when we climbed up the precipitous boundary-wall by a narrow zig-zag path of great steepness, and often very slippery, the clay being wet with yesterday's rain. The height of the wall at this place was at least 800 feet. Our spirited little horses seemed quite used to this kind of path, stopping now and then to get breath, and then cantering up the steepest and worst places, digging their hoofs into the holes and steps that were worn in the ground, and clutching as it were at any projecting prominence. They often cantered and scrambled up places so steep that we were obliged to throw ourselves on their necks to preserve our equilibrium. However, we thought this was taxing the willing

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little animals too heavily, so we dismounted, and climbed the rest of the way on foot. Arrived at the summit, the road passed through a narrow gap in the top of the ridge and then issued out onto the crest of one of the great outer buttresses, or lateral ridges, that lean against the mountain sides. Here we had a most glorious view, as we found ourselves on the northern face of the Teng'ger, and had the plain of Probolingo and Passarouan immediately below us, at a depth of 6 or 7,000 feet, and the whole line of coast up to Madura and the strait of Sourabaya, with the delta of the Kediri, spread like a map beneath us. We could discern the houses of Passarouan, and the cultivated plain around it, with its square fields of different kinds of crops, looking like a carpet richly chequered with various shades of green, yellow, and purple. On each side of us, broken ridges, richly clothed with wood, pitched steeply down into a fold of snow-white cloud, that clung to the sides of the mountains, and crept stealthily up the ravines in wreaths of mist, that gradually dissipated as they approached the summits. As we proceeded along the sinuosities of the mountain on our narrow winding ledge, that now began rapidly to descend, we caught glimpses of Mount Arjuno, with its three peaks rising very grandly out of a basal ring of cloud, about twenty-five miles distant on our left. After some long and steep descents, we reached a point where the buttress we were on widened and became more level, affording space for

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a small village and some gardens. Here there was a very fair hotel, kept by a Dutchman, named Templeman, who spoke no English, but was very civil and obliging. This place is called Tosāri, and is well known as a place of resort for invalids requiring the bracing air of the mountains, or for parties of pleasure from Passarouan and the neighbourhood. Here, of course, we found all the necessaries and luxuries of life, and among other things, bread, which we had not seen for the last seven days, as the Javanese substitute for it rice in the plains, and potatoes in the mountains. The hotel is just on the brow of the ledge looking down onto the plains and the sea. It stands in a court-yard, surrounded by a bamboo fence, in which are some other houses for servants. Under a shed, on one side of the court-yard, was a gamelang, or native band, that saluted us with "Rajah datang," as we approached, and played other tunes occasionally during the day. The village outside was a straggling one along the ridge, and not, as usual, enclosed in a fence. The houses, as in all these mountain villages, were very different from those of the plains. In the latter the houses of the peasantry are composed almost entirely of bamboo, the poles and posts of the stouter pieces of that plant, and the walls generally of split bamboo woven into mats, the roof being thatched with large mats of attop, or the leaves of the Nipah palm. The mountain houses, on the contrary, are built of plank. The posts and beams are made of casuarina, roughly

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squared; the planks, which form the walls, are made from trees split by wedges, and roughly dressed down with an adze. They are, therefore, both thick and rugged. The roof is commonly thatched with reeds or grass, but sometimes with shingles, and there is generally a projecting piazza, or verandah, carried round the house, just under the roof, which is covered with bamboos split in half, the hollow part being alternately upwards and downwards, their edges overlapping,* so as to form a succession of gutters, to carry off the water from the roof, and prevent its falling against the sides of the house.

We visited one of these houses under the guidance of Mr. Templeman. It was very long for its height and width. The door was at the side at a little distance from one end, and on entering there was found to be only one long low apartment, occupying the whole length of the house. There was a raised space along the end of the house nearest the door, and the middle and largest part of the house had a slightly raised space on each side, leaving a passage between on the bare ground. These raised spaces were frames of bamboo, covered with mats, and were not more than five or six inches high. The farther end of the apartment was occupied by a square raised stove or fireplace built of brick, round which were boards for seats about two inches above the ground. On each side of the stove

* Just as curved tiles are sometimes used in England for the roof of a cottage.

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were two dark dirty-looking cabins, the sleeping apartments of the family. At this end, under the gable of the roof, was a small window, closed by a shutter on hinges. There was no chimney, nor any other opening, except the door. Overhead were racks, on which were spears and agricultural instruments, and other things. This, with the roof and indeed all the interior, was black and shining from the constant smoke; for when it rains or is cold they shut the door and window, and fill the room with smoke, which they think warm and comfortable; its only method of escape then is by oozing through the thatch. The raised parts which occupy the sides of by far the larger part of the house, were (we were informed) used only at feasts, such as marriage ceremonies, and the reception of visitors. On such occasions the end near the door is occupied by musicians, and the males and females are arranged in the centre of the house, one on one side, the other on the other. Small fires are then lighted at intervals down the central passage on the ground, on which are kept pots of coffee and other refreshments, with attendants near them to serve them out to the company. There were no partitions in the house, except the bulk-heads or boarded ones of the cabins near the stove. The aspect of the interior resembled the "'tween decks" of an excessively dirty ship. This was said to be a good specimen of one of the mountain houses, all of which are on the same plan. They generally stand pretty close

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together, huddled up without any order or arrangement, surrounded by a paling, forming thus a small kampong or dasar, accessible by only one gate, but totally destitute of the fruit-trees which give so much beauty to the kampongs of the plains, and conceal their otherwise mean appearance and dirty condition.

The inhabitants of the mountains, especially of those called the Teng'ger, differ from the people of the plains not only in their dwellings, but to a certain extent in their persons, being taller and more robust, and also in their manners and customs. Remains of an ancient form of the religion of the Hindoos are said still to linger among them, with many superstitious observances. They bear an excellent character for honesty and general morality, as well as for industry and frugality, and are said often to accumulate wealth. They supply all the towns of the coast with European vegetables and fruits, besides growing maize, tobacco, and other things for their own consumption. They are said commonly to hoard the money they receive for their produce, concealing it in the posts of their houses, which they make hollow for the purpose; and I was told of instances of an old man having been found at his death worth ten, fifteen, or even twenty thousand rupees, or from 500*l.* to more than 1,100*l.* sterling.

As usual it began to rain at two P.M., with thunder and lightning, and ceased between four and five

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o'clock. I then took an opportunity of walking with Mr. Templeman through his garden, which was spacious and well kept, and full of European fruits and vegetables. It was indeed precisely like a large English kitchen garden, with a greater exuberance and rankness of growth. The soil seemed wonderfully thick, as there was a new ditch, five or six feet deep, which had not penetrated through the rich dark vegetable mould, and yet just over his fence the ground pitched down 500 or 600 feet, at an angle that would make walking very difficult: still even that was cultivated.

Nov. 20.—This morning everything below us was obscured by clouds, but as usual it was fine overhead. We set off at half-past six, and immediately descended into a ravine, and then climbed the opposite slope; then curving round the shoulder of a ridge, the road wound at a level round a deep recess, in the hollow of which below us was a very neat-looking and tolerably clean "dasar," of which, as we looked down upon it, we could only see the long sloping roofs and overhanging verandahs. It put me in mind of views of Swiss scenery with their mountain villages.

As we looked across the valley, at the road on the opposite slope, it seemed the merest possible ledge, but we found it a very fair one, sufficiently wide for three to ride abreast, and it climbed the crest of the next ridge, till we again stood on the summit of the Teng'ger, and prepared to descend its southern side,

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towards the town of Pakis. M. Zollinger had recommended us to visit that place, in order to examine some ancient ruins near it, which he described as very beautiful. The mist and clouds had now pretty well dispersed, and we again enjoyed a splendid view of the plain to the northward, as far as Sourabaya, but the most beautiful object now was the Arjuno. This mountain, the height of which is given in the Dutch Almanack, as 11,934 English feet, rises with a noble sweep from the sloping land around it, and is covered nearly to its summit with magnificent forests. It is not so symmetrical as Semiru, as it has three small summit cones, rather irregularly formed, one of which still occasionally rolls out a considerable volume of smoke. Porrong hill, a miniature of itself, rises to the north of it, and a grassy ridge stretches from its southern base, uniting it with Mount Kawi, another fine group of hills, the height of which is probably six or eight thousand feet.

In descending on the south side of the mountains, the slope was at first inconsiderable, and we passed through several grassy hollows, but as we proceeded, the inclination became more rapid, and the road was very slippery, the clay being wet with the daily rain. On one steep slope my pony fell, and treated me to a roll on the grass. Fortunately, I had given my barometer to a coolie to carry. The Javanese are accustomed to saddle their horses so far forward, that in going down hill, the weight is thrown almost

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in front of the horse's shoulder, onto his neck. My saddle had no crupper, but luckily my shot pouch had a round strap,* which answered very well for one, and on properly adjusting the saddle with it, I found the animal's paces and sure-footedness much improved. This was the fourth time one of these ponies had come down with some of the party, so that though they boast of their sure-footedness, it does not seem to be with much reason. After proceeding some distance, still descending, we came to the head of a narrow and steep ravine; down one side of which, the road wound at such an inclination, and with so slippery a surface, that all the party were obliged to dismount, and even then we had some difficulty in keeping our own footing, and in preventing our horses from rolling headlong. In this ravine we took leave of the casuarinas and grassy summits, and began again to enter forests of a more rich and tropical vegetation. Tree-ferns abounded in these sequestered dells, in the most graceful profusion, while teak, and other magnificent-looking forest trees, wreathed and festooned with parasites, met the eye in every direction. It is hopeless, however, to attempt with any word-painting

* Should this meet the eye of any one who purposes travelling beyond the bounds of Christendom, let him take care to lay in an unlimited stock of straps, of all kinds and sizes, carefully oiled and packed, with their buckles, &c. I do not know any one article, he will find so decidedly inferior to the English, in strength and endurance, as the leather of foreign countries, whether for straps, shoes, or other purposes.

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to convey an adequate idea of the combined richness beauty and elegance, the dense shade and fresh moist sparkling verdure of these secluded and romantic valleys. In the depth of this ravine ran a brook, which we could hear leaping from ledge to ledge, but could not see for the overhanging foliage, and when, near the bottom of the valley, we crossed it by a wooden bridge, its waters were still hidden from us, by what looked like a bank of vegetation (bushes made solid by creepers) arching over it on either hand. Close to this bridge, one side of the ravine rose up in a perfect precipice, down which fell a cascade that from the sound must have been of considerable size, a yard in breadth, I should think, at least. But though it fell within three yards of me, and joined the brook beneath the bridge, not a drop of it could I see, for the whole face of the steep hill, besides being covered with lofty trees wherever they could find a footing, was so densely crowded with undergrowth, ferns of all descriptions, great broad-leafed plants of several varieties, and such a mantle of creepers, as to hide from the sight everything beneath it, and form a dense and impervious screen over rock and waterfall. Some of the spray actually wetted me as it dropped from the plants above, and I took some pains to try and find an opening, but not a peep could I get at the cascade. While, however, the vegetable world is displayed with such profusion, there is rather a remarkable absence of animal life in these mountains. We did

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not see a single quadruped, nor do I recollect any birds, certainly there were none remarkable either for beauty of plumage or sound of voice. The animal creation seemed to prefer the more open spaces of the lower slopes of the mountains, and the plains at their feet.

Emerging from this ravine into a wider valley, a lovely green lane led us thence along the sides of the mountains, on which there were now occasionally open grassy spaces and partial cultivation, and one or two detached houses, and presently we came among some coffee plantations and a village or two. This was a most delicious country, the road bordered with the greenest turf, and the undulations not too abrupt even for a gallop, the air cool and fresh, and the scenery around varied and beautiful. A little before 10 o'clock we reached a place called Kobonsāri, where we were to halt for breakfast and a change of horses. Our reception here was characteristic of the country. Two men had preceded us all the way armed with spears, the blades of which were about two feet long, and were kept in a wooden sheath, the handles being 8 or 10 feet long. These were carried upright in the right hand without a rest. As we approached the halting place the spearmen pressed into a gallop down the narrow road between the fences of the coffee grounds, and we followed their example, while the rest of our escort, of about ten or a dozen men, came clattering behind us. As soon as we came within sight of the

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gate of the kampong, a large gamelang clanged forth a welcome, a troop of men poured out, the spearmen threw themselves from their horses at the gate, charging through which we entered a small court-yard, where a crowd of servitors pressed forward to hold our stirrups, take our horses, marshal us into a rude kind of pandopo, and receive our hats and jackets, while one or two others presented us with basins of water and towels. Before we could dry our hands and faces, a cup of tea was at our elbow, and a tray of excellent confectionary, while the table was garnished with pine-apples, mangos, water-melons, and a variety of other fruits. As the place seemed small and poor, and there did not appear to be any one present of a higher rank than the head of a kampong, we were rather surprised even at this display; but lo! and behold! no sooner did we slacken in our attentions to these viands than they were removed, and the table soon covered with a hot breakfast of twenty different dishes, that rivalled even the luxurious meals of the Rongo of Lamajang. What was, perhaps, most singular, when we considered where we were, the table was covered with English cutlery, the table-cloth probably was of English manufacture, and on turning up a plate I found it came from the Staffordshire Potteries. Wedgewood has beat China, even at its own door.

Soon after we sat down, our coolies arrived with the baggage, and I was enabled to observe the

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height of the barometer, from which I deduced the height of Kobonsari above the sea to be 3,441 feet.

I had at first some hesitation at trusting my barometer to the hands of a coolie, but I found it by far the best plan. I always took it out of its case, and shewed it to him first, that he might have an idea of its fragility, and then shewed him how to carry it, and often passed him on the road, after setting off, studiously holding it in the same position, with a face of the utmost gravity and earnestness, and sometimes, I think, a little awe of so incomprehensible an instrument. Our baggage was carried partly slung on poles of bamboo, and partly on a square bamboo frame, like a handbarrow with sides. In this, various minor articles were frequently left loose and open, but we never lost anything, nor had anything injured from any of the sets of coolies we employed, and they generally arrived at the halting places in a surprisingly short time after we ourselves reached it on horseback. A more willing, obedient, honest, and hard-working set of people indeed no one could have wished for.

After an hour's halt at Kobonsari, we proceeded with fresh horses, and rode for one or two miles down gentle slopes, in a green lane, between coffee plantations, the bushes of which were now covered with green berries in great profusion. We then crossed a little valley of long grass or alang alang, after which we came to the foot of a ridge covered with loose blocks of stone. This was the first stoney

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place I had seen in these mountains, the rock was a hard crystalline grey trachyte. Climbing up this ridge we came upon a small pandopo, where we found the Widono of Pakis and a party of mounted attendants, waiting to escort us into his district. For another hour we continued rapidly descending a succession of slopes, more or less steep and slippery, through an alternation of forests and coffee grounds, till a little after noon we suddenly emerged from our narrow shady lane into an open plain, covered with rice-fields and villages, and scattered patches only of forest and jungle. Here the road was broad and excellent, with a bare carriage way in the centre, and bordered with wide margins of turf at the sides. The Widono, who was rather a tall man, of about fifty years, with exceeding gravity of countenance, now put his forces into something like military array. We found we formed a body of thirty horsemen, independent of several others who had stayed behind with Hill, who was not well, and Evans, who remained to come quietly on with him. The Widono sent on one of his attendants, apparently a petty chief, about sixty yards in advance. He himself, and his Bukkel, or lieutenant, stationed themselves immediately behind Captain Blackwood and me, and the rest formed two irregular lines astern, four of them carrying long spears, and one a brightly-polished musket, belonging to the Widono. The chief and his officers were handsomely dressed, with ornamented krisses, blue and red cloth

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over their saddles, and silver trappings to their horses, and the whole train were well clothed and armed, blue and red being the predominant colours. As we cantered along at the head of such a handsome escort we must have had a very mean appearance in our dirty shooting dresses and dingy straw hats. Our white faces, however, made up for all other deficiencies in our personal appearance, and seemed to assure us the most unbounded respect. After an hour's canter across the plain, we reached Pakis. This seemed a very straggling place, consisting of several detached kampongs around a large open grassy space, through which ran a small valley and a brook that was dammed up into several pools of water. The passangerang was on one side of the Widono's court-yard, close to his house. It was as comfortable as usual, but rather confined. The Widono's house was large, built chiefly of bamboo, and in the centre of the court-yard was a very spacious and lofty pandopo, floored with brick and partly covered with mats. Here he seemed to transact business and receive visitors, as, soon after we arrived, we observed a group of people sitting down in it, to whom he came and seemed to be either deciding a dispute, or giving orders. Every man, as he addressed him, raised his joined hands before his face, and bowed the head at the close of each sentence. We had the usual heavy rain from two to four o'clock, after which we thought we would go and have a swim in one of the pools we

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had observed on coming in. No sooner was our intention perceived, however, by our walking down the court-yard with towels in our hands, than a messenger was sent into the house to the Widono, and out he came after us with two spearmen and a troop of attendants, who took our towels, and then posted themselves behind us, and followed all our movements with the greatest gravity as we went along looking for a convenient spot to bathe in. At last they begged us to go towards a bridge as the best place, and the Widono sent half a dozen men into the water to clear away the weeds, while the others stood by us ready to take each article of clothing as we pulled it off, and hold it for us, the Widono and his spearmen being posted on the bank to superintend operations. We found the water rather shallow and muddy, but as I caught sight of some freshwater shells, I waded about to collect them, and got several kinds belonging to the genera paludina, lymnæa, planorbis, cyrena, and cyclas. During all this time there stood the Widono and his spearmen and servitors, waiting patiently on the bank, a man stepping forward to receive the shells whenever I got my hands full, till I pleased to come out and dress again, and then we all marched back in solemn procession. We could not induce even the Widono to walk in line with us, and whenever we turned to address him in our imperfect Malay, he bowed with a grave and deferential air, till at length I could hardly refrain from laughing in his

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face. At dinner, which was as abounding and well cooked as usual, we sent to request his company and assistance to dispatch his own entertainment, but he sat like Baillie Macwheeble, in Waverley, on the edge of his chair, half a yard from the table, and seemed overpowered by our condescension, while we were equally oppressed with our own greatness.

Just before sunset, when the clouds cleared off, I strolled out to look at the surrounding country, which we could not see from the house for the groves of cocoa-nuts and areca-palms, and other trees. I thought I had succeeded in making my exit unperceived, but though I dodged the spearmen, I had soon four other fellows at my heels, with a "where shall I go—what shall I do for you" expression of countenance that capsized my equanimity. Under a pandopo outside the gate I found the worthy Widono standing, and giving orders to half a dozen petty chiefs who were squatting before him, and as soon as he caught sight of me, he caused them to shift their places, and squat down on the other side, apparently that they might not have their backs towards me as I passed. I soon tired of walking with four people at my back, and felt as if under espionage, which at one time I was half inclined to suspect must be the real object of all this attendance, but, I believe, quite unjustly, and that it was merely a mark of respect, for on pulling out a cigar, one of them rushed into a neighbouring house, and brought a burning stick to light it with,

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and all seemed only to wait for an opportunity of being of use to me. I fancy Pakis is out of the regular route of European travellers, as the attendance at other places, while sufficiently ample, was not so burdensome as here.

Nov. 21.—We sent off our coolies direct to Malang, the principal town of the district, but went ourselves a few miles round to visit the ruins. We first of all went east about four miles, to Djago, which we reached at eight o'clock. Here, on a slightly rising ground, in an open space, embosomed in the forest a little to the left of the road, were the ruins of two small Hindoo temples or shrines. They were both built on the same plan, but one of them was much more richly ornamented than the other. This was a quadrangular building, the base of which was seventy-nine feet long by forty-six broad. It had four stories or compartments, each receding several feet within the edge of the one on which it rested. Each compartment was seven or eight feet high, and the uppermost had a narrow arched doorway leading into a small chamber in which there had been a statue of some Hindoo deity. The stories were reached by a narrow flight of steps on each side of the front of the building, which was adorned by several figures beautifully sculptured in alto-relievo. The sides of the stories were adorned with friezes, one of which consisted of a series of figures of men and women and animals, among the latter of which we could make out an elephant, a

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tiger, and some rams and pigs. Above and below were scrolls ornamented with richly-carved foliage. The leaf of the lotus frequently occurred as an ornament, and behind this temple was a circular pedestal elegantly decorated with carved lotus-leaves, on which had been a small column, perhaps the lingam. The other temple, which was about thirty yards distance, in a parallel position, was nearly destroyed by trees growing about it. It was much plainer than the first, the sides being devoid of ornament or sculpture. The buildings were all of stone, the principal parts of a rock, dark soft and earthy, close-grained with black patches; but all the sculpture and carved work was cut in blocks of a hard, crystalline, brittle, grey trachyte, or trachytic porphyry. The whole style and design of these buildings was chaste and elegant, and the workmanship of a neat and refined character. Backed by the dark-matted forest, and surrounded with rich soft turf, they formed really most beautiful objects. The Widono said the people still venerated these temples, and sent their sick to make pilgrimages to them; and we observed several of our escort make a kind of obeisance as they ascended the steps. Several sculptured blocks had apparently been picked up and replaced on the sides of the steps, though evidently not in their proper positions; and a kind of sloping platform of old bricks and broken blocks of masonry had been recently constructed, leading to the front of the temple.

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A pandopo stood a little on one side at the edge of the wood, where we found a table as usual spread with tea, cakes, and fruit, after partaking of which we mounted for Kedal. This was a few miles distant towards the south-west, and the ride thither was beyond measure delightful. A broad road, apparently little used, as it was a complete carpet of short green turf, led us across a gently undulating champaign country, passing now through patches of beautiful forest, now through open rice-fields, or small plains of alang alang. Here and there was an isolated hill, steep and rocky looking, crowned with clumps of noble trees, while sparkling brooks and rills kept the refreshing sight and sound of falling water continually in our ears. Of these rills many were artificial, and conducted from one expanse of rice-fields to another. In the fields people were busy ploughing, or engaged in other agricultural operations, while here and there a grove of fruit-trees, with cocoa-nuts, areca-palms, and clusters of bamboos, rising among them, shewed the situation of the native villages. Round this lovely country swept a semicircle of mountains of equally beautiful and magnificent forms and dimensions, the Kawi and Arjuno bounding it on the west, the broken ridge of the Teng'ger on the north, and the stately Semiru raising its lofty cone into the blue sky on the east. To the south some much lower undulating ridges shut out the view of the sea, above which we were elevated about 1500 feet, the Widono's

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house at Pakis being 1550 feet above it by my observations. The air accordingly was clear and cool, and the temperature by no means too great for enjoyment, never rising above 80° in the shade. We could hardly fancy ourselves in the tropics; indeed, so fresh and smiling was the country, that one almost expected, on riding from some of the belts of wood onto open park-like slopes, to see some noble mansion or country-seat on the declivity beyond. I could have pitched on sites for a dozen such which would be unsurpassable in beauty and pleasantness of situation, and with a little congenial society could imagine no better or happier country to reside in than this. After a ride of about four miles from Djago we crossed a considerable brook, the stream of which was almost entirely drained off higher up for the purpose of irrigation. We then turned sharply to the left down a green alley in the woods, and came to a beautiful forest glade, in the centre of which were the ruins of Kedal. This was a Hindoo temple of a different form from those of Djago, being larger and more in the style of what we understand by the word *pagoda*. The principal part was a large quadrangular tower on a base of 24 feet square, surrounded by several low walls crossing each other at right angles, and forming now several square enclosures, the walls having never apparently been much higher than at present, or about four feet. The central building had one or two stories receding upwards to a small square tower, above

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which it again swelled out with narrow overhanging ledges, and then rapidly receded by small steps to a point. Monstrous faces with boar's tusks were carved on the centre of each side of this upper part, and a horrid satyr-like figure was placed at each corner of the base of the building. There were likewise carved scrolls and other ornaments and sculpture, of which we had not time to take the description. At the edge of the dense forest which entirely surrounded this building, at a distance of about 100 yards, I observed some bricks, and on penetrating at one or two points found everywhere mounds and hollows; the mounds seeming to consist altogether of old bricks covered with turf and bushes. These bricks were the ruins of the houses of the ancient inhabitants.

At a convenient spot between the temple and the forest stood a small but good pandopo, where a white table cloth waving in the breeze, spoke of more refreshments, and after looking over the ruins we found a luxurious hot breakfast awaiting us, cooked in the neighbouring village, and brought in covered boxes of bamboo. We could not but admire the taste of the natives, which had led them to select such a spot for a rural meal. It would have made a lovely picture from where we sat; the silent half ruined temple, the rank and luxuriant forest, and the open glade with groups of horses and natives reposing in the shelter of a few scattered trees, and the four spearmen seated on a mat with their tall

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weapons held upright in their hands before them. We could not, however, afford to linger here, as it was necessary to be under cover before the afternoon rain set in, so at eleven o'clock we mounted again, and regaining the road, galloped up from the valley onto some open downs covered with long waving alang alang.

We here tried to break up the formality of the march a little, and suddenly charging the two spearmen who rode about a hundred yards a-head, succeeded in passing them, to their affected discomfiture, but great apparent enjoyment. The Widono seemed to consider himself bound to keep as near behind us as he could, and we had a regular race occasionally, till the blowing of our horses called us to pull up, and the spearmen regained their places. Even the grave old Widono seemed at last unable to resist the fun of the thing, and burst into a hearty laugh, while all his attendants dismissed their seriousness at once, and we proceeded amidst frequent roars of laughter. The young Bukkel especially, the Widono's next officer or lieutenant, assumed an animated spirited look, and his black eyes began to sparkle as we spoke to him of field sports, through Hill's interpretation, and I have no doubt he would, on a little acquaintance, have proved an excellent companion in the field. We crossed one or two brooks, running to the south, as we approached Malang, and got upon a broad excellent road, that seemed one of the

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antiquities of the country, as it was based occasionally on an old causeway of bricks of the same kind as those near the ruins of Kedal. Bricks made by the Javanese of the present day are much inferior to these ancient ones.

A little after noon we entered Malang, which seemed a very considerable place. We passed by a large market, and down a street, inhabited principally by Chinese, with inscriptions on the door-posts and gateways, and then turning short to the right, galloped on to a very spacious piece of turf, forming the centre of a noble square, ornamented by large and handsome houses, with pleasure-grounds about them. Crossing this, we rode down two more streets or roads, bordered by native houses and kampongs for about half a mile, till we reached the northern suburb of the town, where, on a rising ground beyond a bridge, we found an excellent passangerang. This was a spacious, substantial, brick house, with a flower-garden and grass-plot in front, and a green slope behind, down to a rocky brook. It was also a regular hotel, where we could call for what we pleased, and pay for it.

About a musket-shot below us, on the other side of the road, was an irregular white building, forming barracks for thirty solders. It was well posted, as it commanded the main road, and the bridge over the brook, which has steep precipitous banks, 20 or 30 feet deep. The brook has a rocky bed, and is

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full of great boulders, brought down by floods. The rocks were all igneous or volcanic, varieties of trachytic lavas and basalts. A little above the bathing-place, at the back of the hotel, the sides of the brook rose into steep wooded precipices one or two hundred feet in height.

The country about, although looking like a plain when seen from the neighbouring mountains, is abruptly undulating, with steep eminences in many places, and is furrowed by small ravines formed by the many brooks which traverse it, and which eventually join to form the river Kediri.

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CHAPTER IV.

CIGAR MANUFACTORY—RUINS OF SINGHA SARI — NATIVE MARKETS—BATU—HOT WELL—ANTANG — PLEASANT AND FERTILE SITUATION—EXCELLENT HORSES—SOLITARY RIDE DOWN THE VALLEY — WONOSALAM — VALLEY OF THE KEDIRI—DISTANT MOUNTAINS — MAJOAGO — MORTALITY AMONG THE HORSES—RUINS OF MAJOPAHIT—ARRIVE AT MAJOKERTO—LOCKS ON THE KEDIRI—RETURN TO SOURABAYA.

November 21, 1844.—As soon as the afternoon rain had ceased, we walked out to look at the town, leaving Hill, however, in bed, as he had become very unwell. I eventually made the height of the hotel at Malang, 1428 feet above the sea, so that the mean height of this district may be taken at between 1400 to 1500 feet. Notwithstanding this altitude, and its being thirty miles distant from the sea-shore, cocoa-nuts were abundant, perfect groves of that and other palms surrounding the town, and overshadowing the roads between the kampongs. These roads were now rather muddy and ill-kept, as were also the court-yards and approaches to several of the houses, whether native, Chinese, or European. The Chinese seemed to be here in great numbers, and we went over a considerable cigar manufactory belonging to one of them. Malang is the principal place for this manufacture in

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Java, but whether from want of care or skill in the business, or from the inferiority of the plant, they by no means equal, or even approach, the productions of Manilla. The Spaniards, indeed, both in the eastern and western hemispheres, are the only nation who have succeeded in making first-rate cigars. As we walked about the town we found ourselves attended by one or two well-dressed Javanese servants, leading a handsome piebald pony, and discovered at length they were sent by the Regent to wait on us. We saw also in one or two parts of the town much handsomer and finer-looking horses than we had hitherto met with, and understood they came from Bima, in Sumbawa.

On our return to the hotel, we found from our sick friend, Hill, that M. Dickelman, the Assistant-resident, had been to call on us, and just as we had finished dinner he came again.

He was remarkably civil and attentive, and seemed an active, intelligent man. He had resided twenty-eight years in Java, eleven of which he had spent at Malang, but had no marks in his appearance of so long a residence in the tropics, and told us he had never been ill, except at Batavia and another place on the coast. He informed us that the town and district of Malang contained 80,000 inhabitants, and that it produced and sent down to Passarouan 80,000* picul of

* About 4,872 tons. This quantity seems so enormous that I fear I must have made some mistake.

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coffee annually, besides tobacco and cigars, and the rice and other grain raised principally for their own consumption. There certainly appeared to be an immense production or transport of some kind of produce, for the main road to Passarouan ran about fifty yards in front of the hotel, and during the two days and nights we remained there, one ceaseless stream of bullock-waggons seemed to be passing along it. At night this was especially the case, for at whatever hour I awoke I heard the creak of their wooden wheels and the cries of their drivers.

We had observed to-day in the Chinese, and in some of the native houses, European furniture and utensils, and have never yet, either on the coast or in the interior, met with a beggar, or any one with ragged clothing, or of an emaciated or poverty-stricken appearance. The mass of the people certainly were well clothed, fed, and housed, and I might say well armed, and furnished with good tools. Whatever, therefore, the nature of the Dutch Government may be, it is plain it is not incompatible with the material comfort of the people during ordinary seasons. In times of scarcity, however, I believe great distress occurs, as the mass of the people accumulate no property,* but live entirely from hand to mouth.

* M. Dickelman ascribed much of their poverty to the practice of chewing opium, and the greater wealth of the Teng'ger people to their freedom from that expensive habit.

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Nov. 22.—We rode to-day about seven miles out, on the road to Passarouan, to visit the ruins of Singha sari. We were astonished at the number of people on the road, horse and foot passengers and bullock-waggons forming a continuous stream, both of people going from and coming to Malang. The country gradually rose towards the north, the direction in which we were proceeding, and the road made apparently for a low ridge, forming a gap between the Arjuno and the mountains of the Teng'ger. All the land seemed well cultivated, and carefully irrigated, though most of it was now fallow, or being ploughed and harrowed. The plough was very simple. The coulter was nothing but a large knife, stuck onto the end of a long bent handle, forming the tail, and from the junction of the two a long piece of wood projected forward, at the end of which was the cross piece or yoke for the oxen to pull it along. The harrow is equally simple, being nothing but a large rake, drawn by oxen, with the man who drives them sitting on the cross-piece. The small brown oxen, something like the Brahmin bull in shape, are most commonly used, and are said to stand the heat better than the great buffalo or mud ox, the skin of which is of a dark mouse colour, and nearly hairless, and which has huge spreading horns. The small brown oxen are much the handsomer beasts of the two, being delicately and elegantly formed, and the calves might often at a little distance be mistaken for deer.

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About seven miles from Malang, we came to a wissel-post, with the usual large shed over the road, and just beyond we passed a large market on our right hand, and a large native house in a court-yard on our left. At the gate of this was a native chief, with attendants, who, the instant we passed, mounted and followed us, and we found he was the Widono of the district to whose care we had been consigned.

Just beyond this we turned to the left, leaving the high road for a grassy lane, leading towards a wood. At each side as we turned off was a large stone covered with an inscription, probably in the old Javanese or Kawi character. In less than half a mile from the main road we reached the ruins of Singha sari. These, of course, it is impossible for me to describe after merely one hasty visit, nor have I the knowledge of Hindoo mythology which would be necessary to understand them, or make them intelligible to the reader. They stand scattered at the edge of a wood, the recesses of which may conceal others. There were six principal erections of hewn stone, besides the base of a circular tower, and many large and small figures and fragments of sculpture and statuary scattered about. Three of these buildings were temples of similar form to those of Djago and Kedal, but less elaborately ornamented. They were quadrangular, rising by successive stages to a shrine at top, in which were statues of a large size, but more or less defaced. The base of the largest of these buildings measured

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93 feet by 36. None of them had friezes, but there were carved ornamental markings along the sides, and many niches and pedestals for statues, and some alto-relievo figures.

Two of the other buildings we called tombs, but very likely were quite incorrect in doing so. They were similar to the temples in style, but much smaller, square at the base, rapidly diminishing in stories upwards, and then bulging out again in overhanging steps or ledges. One of them was crowned with the base of a ruined circular erection, perhaps a dome, or cupola. This the Widono called Chunkoop Wyang,* the others Chunkoop Putri. The sixth building we could not make out at the time, as it consisted merely of two solid blocks of half-ruined masonry; I believe, however, it was part of a gateway, probably that of the enclosure in which the temples stood.† On each side of it was a gigantic figure, one male, the other female, of very corpulent proportions and fierce aspect, scantily clothed, and each wreathed round by a huge serpent; they knelt on one knee, with the other pressed against the breast and body, leaning by one hand on a great club with a square head, much carved. The male figure had the right hand raised and turned outwards with two or three fingers erect, as if to

* Perhaps Biyang. Biyang and Putri, in the ceremonial Javanese, mean mother and child.

† See Crawfurd's description of the ruins of Brambanan, vol. 2, page 196.

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forbid the approach of an intruder. They had each a kind of crown on the head, the eyeballs protruded as if in anger, the brow was corrugated, and a large tusk proceeded downwards from each side of the mouth. The dimensions of the male figure were as follow :—

Height from the ground to the top of the head .	12 feet.
Circumference round the waist, including the knee, which was pressed against it . .	25
Length of the face . . .	3
Ditto the nose . . .	1
Width across the back of the shoulders .	$8\frac{1}{2}$
Width of the left hand across the knuckles .	$2\frac{1}{12}$
Length of the right hand, which was raised, from the wrist to tip of middle finger . .	$2\frac{3}{4}$

They were each cut out of one solid block of stone, hard but rather brittle, a close-grained grey porphyritic trachyte. They were carefully and admirably executed, smoothly and clearly cut, and the folds of the skin well represented. The Widono called them Rajah Puteh, or Chunkoop Rajah Puteh. On the grass round about, rudely arranged, apparently as they had been discovered, were many fragments of sculpture and statuary, more or less perfectly preserved, but all admirably executed. There was a beautiful Brahmin bull lying down, about four feet long; human figures with elephants' heads; a fragment of a chariot drawn by several horses abreast, admirably sculptured; and many figures of Hindoo deities, with three or four heads and several pairs of arms. They seemed all to be cut from nearly the same kind of stone as that before

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mentioned, and all bore the impress of the same style of art, and that one of no mean order. There were none of the excessively outrè and indecent representations which are, I believe, frequent in the temples of India, and both the buildings and the sculpture bore the impress of great refinement of taste in the design, and much skill and carefulness in the execution. I must plead guilty to the most profound ignorance in architecture and sculpture generally, and to that of the Hindoos especially, but to my eye these ruined temples and statues were singularly beautiful and interesting, and they are worthy, I think, of far more study and attention than has hitherto been bestowed upon them. In the woods around I found, as at Kedal, piles of old bricks of a much larger size, and better material than the Javanese can now produce. These were the ruins either of the houses of the people, or of the palaces of their kings.

As I stood on the summit of one of these ruined structures, and cast my eye over the scene around, I could not but feel deeply interested in the mysterious history of the past and forgotten people who had erected them. The site was a most noble one. It was in the north-west corner of the undulating plain or broad valley of Malang, slightly raised above, and overlooking the whole of it. On the right hand, towards the south-west was the picturesque group of the Kawi, from which a grassy but broken and serrated ridge stretched northwards to the grand mountain

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mass of the Arjuno, immediately behind us, with its peaked summit and shaggy sides, occupying all the north-western quarter of the horizon. In the north was a low gap, affording space for the road and a band of cultivated ground, and giving access to the northern coast and its towns and harbours. Then rose the ridge of the Teng'ger, gradually struggling up in bristling peaks and ridges towards the east, till it reached its greatest elevation in the large crags and buttresses of the Bromo and the Ider-Ider, from which it curved towards the south-east, where it was crowned with the simple and perfect cone of the Semiru, equally regular and symmetrical in all its aspects. The chord of this splendid amphitheatre, or the distance between Semiru and the Kawi, was nearly forty miles, formed of low, undulating ridges, closing the view on the south. The aspect of this great valley was as rich and abounding in beauty, as we knew it was fertile and healthy, and pleasant in reality; while even the wildest and ruggedest of the mountains were clothed with forests in magnificent profusion, all save the two cones of the Semiru and Arjuno, where the destructive force of volcanic power still lingered, though harmlessly, and so far exhausted and pent up as only to add variety of interest to the whole. A populous tribe of men inhabited the plain, and cultivated its surface; but their rude houses were scarcely visible here and there among its groves, and their open fields only varied its natural beauties, without de-

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facing them. When we turned from these to the silent and ruined structures around us, a new interest was called up. The imagination became busy in restoring their fallen glories, in picturing large cities, adorned with temples and palaces, seated on the plain, and in recalling the departed power, wealth and state of the native kingdom that once flourished in a land so noble, so beautiful, and so well adapted for its growth and its security.

That such a kingdom once existed is evident, not only from the detached ruins in so many separate parts of the valley, and the piles of brick in the forests, but from the ancient brick causeways still used as the principal roads of the country, and the ruins of large brick walls that are said to stretch from the southern side of Mount Kawi to the sea, fortifying the valley of Kediri, and thus defending the principal access to the plains of Malang from the west. Any one of these structures is far beyond the powers of the present inhabitants, if left to themselves, and bespeaks a people among whom civilization and the arts had made no mean progress, and had had no short or temporary existence. Whatever may have been the history of the people, it is entirely unknown, and scarcely mentioned even by tradition. A few dates, indeed, have been discovered on ruins in other parts of the island, which, from their style and character, seem to have been contemporaneous with these, ranging from the year 1195 A.D. to A.D. 1296; and a few

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names of kingdoms and princes linger in the old Javanese histories or romances, but hardly a single authentic fact can be discovered.* The latest date that can be assigned to these ruins is in the time of our first Edwards;—making allowance for the difference of climate and of race, was the civilization of England at that time more advanced than that of Java? Was even the absolute civilization, without any allowance, or the intellectual advancement much greater in the one people than the other? Even supposing that there was only an approach to equality, how much of the subsequent difference in their fortunes and condition is to be attributed to innate difference in moral and intellectual capabilities; how much to external influences, to fortuitous or unavoidable circumstances? Many such questions and speculations as these naturally arose in the mind while contemplating these ruins, even while the senses were steeped in the delight of

* See Crawfurd's History of the Indian Archipelago, vol. 2nd, book 6th and 7th. From his account, as also from that of Sir Stamford Raffles' in his History of Java, it appears that the style of the Hindoo temples in Java is peculiar, and different in some respects from those now existing in India, and that the religion of those that built them must have been a modification of the Hindooism prevailing in that country. Mr. Crawfurd thinks the Hindooism of Java was "a reformation of the bloody and indecent worship of Siwa, brought about by sages or philosophers, by persons, in short, of more kindly affections than the rest of their countrymen, and perhaps to keep pace with some start in civilization in the country where it had its origin."

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gazing on the lovely and majestic scenery in the midst of which they were set, and endeavouring to imprint on the memory all the features and beauties of the picture; and many such occur to the imagination afterwards when this picture is recalled, but as, with our present amount of knowledge, they must remain mere speculation, I forbear to pursue them. Java is strewed with similar remains, and some of much greater extent and magnificence, from one end of the island to the other, as may be seen in Raffles' and Crawfurd's books, to which I must refer the reader; merely observing that the outline sketches in the illustrations of those works, while they convey an idea of their forms and subjects, sufficient for our information on those points, by no means do full justice to the artistic beauties of the ruins and sculpture, and hardly attempt to pourtray those of the surrounding scenery.

Our Widono here, as at Kedal and Djago, informed us that the natives still had a kind of superstitious feeling for these remnants of the religion of their ancestors, and the Kling pedlars from India paid them unbounded reverence.

The Widono was a stout, middle-aged man, of a firm and sensible cast of countenance: he took much interest in our proceedings, begged to be allowed to copy our measurements, and appeared anxious to give us information, which we regretted our imperfect attempts at communication could only partially elicit. His manners, still very respectful, were

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more easy and well bred than those of our worthy old Widono of Pakis, and he seemed more accustomed to mingle in European society. He was, however, much amused with my pocket lens, telescope, and compass, which, if not absolute novelties, seemed to be rare objects to him, and as we sat at breakfast, he was continually using them, and asked permission to shew them to his attendants. This breakfast, the luxury of which had now ceased to excite our surprise, was spread in a pandopo, occupying, as usual, the exact spot where, without being itself obtrusively conspicuous, we could best sit and contemplate the principal objects about us at our leisure, affording another proof of the natural good taste of the Javanese. They are indeed a most amiable people: so good-tempered and obliging, and so eager to be of use, and always so ready to enter into our pursuits, whatever they might be, that we began to feel quite attached to them. Nor are they by any means devoid of fun and humour, when they think its exhibition will be allowed. Soon after we set off to return. I asked a poor man by the way-side, for some fire, meaning to light my cigar, but when he returned with a huge blazing log, as much as he could carry with both hands, a perfect roar of laughter rose from all our attendants, and abundance of jokes seemed to be cracking on all sides at his simplicity: one man, I think, asked him if he supposed I wanted to roast my horse.

On regaining the high road we dismounted and

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went to look at the market, which was a very large one, occupying an enclosure of about one acre of ground. There were a few Chinese and some Klings, but the majority were Javanese, and these principally women, both buyers and sellers. The Klings (Kalingas or Talingas) come from the coast of Coromandel, and trade through the Archipelago dealing chiefly in jewellery and cutlery. The Chinese in this market seemed to deal principally in drapery. There were rows of stalls in which were exposed printed calicoes from Manchester, strong blue calico cloth from Madura, broad cloths, and other articles of clothing; in another row were neatly made boxes and baskets of different materials. There was also crockery-ware, both English and Chinese, and the ruder productions of the country. A row was devoted entirely to drugs, spices, and medicines; another to fruits and vegetables, salt-fish and eatables of all kinds, trassi, and other native dainties; and another to jewellery, cutlery, and nicknacks, and for various other matters of all descriptions. We inquired of a Kling the price of two English razors in a case, for which he asked five dollars. In another corner was a space for the sale of horses, and also, I believe, for bullocks, waggons and agricultural implements. In short, it appeared that the whole of the wants of the native population of all ranks and both sexes might have been supplied here.

These markets are held, I believe, every five days

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in the same place, one being held also on each of the other days in some neighbouring market-place within a particular district, the whole recurring in regular order in a cycle of five days, according to an ancient native custom. In a populous district the market-places are about seven miles distant from each other, often in uninhabited places, at spots conveniently accessible from the neighbouring towns and villages. They are now regulated by the Dutch Government, and tolls are paid which are generally farmed by Chinese.

When we had satisfied our curiosity we returned to the neighbouring wissel-post, where we found Mr. Dickelman's carriage waiting us, he having been so kind as to send it from Malang. By this means we escaped a wetting, as the usual afternoon rain set in before we reached our hotel. In the evening, when it had cleared off, we went to wait on him at his own house. This was on the south side of the central square, or green, of the town, surrounded by a garden and pleasure grounds. He introduced us to his wife and family, and we were surprised at the healthy and animated appearance of his children; they had fresh rosy complexions, very different from the pallid faces of children usually seen in tropical climates.

As the conversation fell on the ruins we had visited in the morning, he took us into his grounds and shewed us a great variety of statues, and figures on slabs in alto-relievo, and stones covered with

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inscriptions, that he had collected from the neighbouring country. Many of these were beautifully executed, and some in excellent preservation, having been recently dug out of the soil. They were various in kind, but seemed mostly representations of different Hindoo deities. The Dutch Government do not allow any of these antiquities to be removed from the country. He also shewed us some copies, or models, of the principal figures at Singha sari, on a small scale, cut by a native artist out of a soft kind of steatite or soapstone. These were very fairly done, being pretty accurate copies of the originals, with the relative proportions well preserved. The artist was a young Javanese resident in Malang. I could not make out whether the steatite existed in situ in the neighbourhood or as rolled blocks in the brooks. I had observed one or two pieces of old sculpture at Singha sari cut from a somewhat similar stone, and on shewing them to the Widono he assured me that no stone like it was to be found in the country around.

Mr. Dickelman also exhibited to us samples of different kinds of coffee, some of which had been husked or shelled by mills recently introduced, and was worth, he said, a florin a picul more than that done by hand. He gave us a box of Malang cigars, too, as a sample of some he had had made for his own use, and kept by him for some years. They were greatly superior to those ordinarily to be procured, and were really very fair cigars, shewing how

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much the manufacture might be improved by care, and proper methods of making and storing.

Nov. 23.—Hill being too unwell to ride on horseback was obliged to be carried on a litter made of a bamboo frame and covered with an arched roof of atop mats, suspended from the shoulders of four men. We proceeded to Batu, about twelve miles northwest of Malang. The first part of the road was low, wet, and muddy, through a completely cultivated country; but we then began to rise a little onto more undulating ground, where the cultivated fields were interspersed with brakes and pieces of forest. There was an abundance of water, both in natural brooks and in the artificial rills by which the fields were irrigated. About half way we came to a wissel-post, where there were only one or two fresh horses waiting us. There was said to be a great sickness at present among the horses, and they were difficult to be procured. We accordingly rode gently on, and reached Batu about eleven o'clock. This is a small but very pleasantly situated place at the foot of the ridge which connects the Kawi and Arjuno mountains. It is environed by hills on every side except the east, but is much less embosomed in woods than is usually the case.

Most of the slopes, except those of Kawi just behind us, were covered with green fields, or with long waving alang alang, a few scattered thickets of wood marking the course of the brooks in the hollows. The passangerang was comfortable, with an

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excellent pandopo in front, facing the Arjuno, which rose due north of us at a few miles distance. They said we could easily ascend the Arjuno in two days from Batu, as there was a house more than half way up, which we could ride to in one day. For this, however, we had not time, more especially as it would require arrangements and preparations which we had not made. The neighbourhood of Batu is rather rocky, and the roads stony, whence its name; Batu being both Malay and Javanese for "stone." The view from our pandopo was very beautiful till noon, when the mountains began rapidly to accumulate dark clouds round their shoulders, which presently rolling down their sides, sent forth peal after peal of rattling thunder that echoed grandly from hill to hill, and then settling down upon the valley, shrouded everything from sight in a deluge of thick heavy rain till near sunset, when it as rapidly cleared off, and soon after dark not a cloud was to be seen. These afternoon showers not only refreshed the air by moisture, but were accompanied by a considerable fall of temperature. To-day, for instance, on our arrival at Batu, at 11 A.M. the thermometer stood at 80° Fahrenheit in the shade, at 4 P.M. it had fallen to 71°, and at 9 P.M. to 68°, which felt quite chilly. At 6 the next morning it was only 65°. The height of Batu above the sea is 2,778 feet by my observations of the barometer. Even at Malang and Pakis, at least 1000 feet lower, the thermometer at sunrise was not above 67°. It is, I

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have no doubt, to the comparative coolness of their nights that these mountain plains owe their salubrity. As far as my experience goes, it matters little to what heat the human frame is exposed during the day if it be refreshed by coolness at night.

Nov. 24.—At a quarter to seven o'clock we set out on horseback up the valley towards the ridge of grassy hills on the west of us. After riding about two miles we turned off to the left to visit a hot spring. This was in a small hollow valley, the scenery of which reminded me very much of parts of North Wales; green sharp-topped hills rose all round it, bare of trees except a scattered clump here and there, and a few cottages, looking like small farmsteads, were dispersed about. Round the springs were a few half-ruined buildings of hewn stone, evidently ancient; one of them had been a small shrine or temple, and there were pavements looking like the floors of others which had disappeared. The springs were conducted into baths of masonry, with stone steps of ancient and excellent workmanship, but they were now covered with bamboo houses. A venerable looking old man, with a white beard (a thing very uncommon among the Javanese), had charge of them, being probably a priest. The temperature of the springs was 108° Fahrenheit. Their taste was strongly saline, not unlike Epsom salts. They were situated on a little mound, which seemed to be composed of travertine, that was still forming on the outer slope, and en-

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closing sticks and other matters. From this place we returned to the road, and then rode up to the top of the ridge, where we were met by the Widono of Baki, and the Widono of Batu took leave of us. He had informed us that violent east winds sometimes blew up the valley of Batu, blowing down even houses. This was no doubt the reason of the scantiness of wood on that side the ridge, as on the other or west side, the hills were covered with the usual abundance of forests.

We now rode down the slopes of these hills into a narrow valley, with sharp-peaked ridges on each side of us, till we arrived at Baki, where we met the Widono of Antang, with fresh horses, and found the usual refreshment of tea, cakes, and fruit spread in a pleasant pandopo. We continued to descend down a lovely glen, with a broad foaming brook leaping from ledge to ledge, and about half way down had a view of a fine cascade that fell over the rocks on our left, into the valley, from a height of about forty feet. Lower down, the glen expanded, and its sides and lower slopes were covered with rice-fields. These were formed into many narrow terraces, the water being confined by small, curved, and scalloped-shaped dykes, or ridges, looking like miniature fortifications. The steeper heights above them were covered with fine wood, among which the road wound for some miles nearly at a level, and forming a beautiful stripe of turf, as close and soft as that of a bowling-green. I endeavoured to enter

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into conversation with the Widono, who was a slightly-built, active, and intelligent man, mounted on a very pretty grey pony. Wishing to see its paces, I challenged him to a race, but found he had some hesitation in passing me, till I encouraged him to do so, when he went by like a shot, but soon pulled up, and seemed much gratified at my praise of his horse. On my asking him how much he would sell it for, he replied, he would let me have the horse for 300 rupees silver (about 20*l.* sterling); but he could not part with the saddle (evidently an English one), as it had been given to him by a particular friend of his, an English gentleman, who had had a coffee plantation near Antang, but whose name I forget.

About eleven o'clock we entered another broader valley, and saw the town of Antang below us, in a very beautiful and picturesque situation, on a raised flat at the head of the valley, which opened towards the south, between Mount Kawi and Mount Klut. A deep-banked brook issued from each side of the town, and lower down were very extensive rice-fields, with the green rice growing among shallow water. The meadows about the brooks and their steep sides were covered with beautiful turf of a most brilliant green, groves of cocoa-nuts surrounded the town, while the hills on each side, though not very lofty, were most picturesquely broken into peaks and ridges, and precipitous slopes, covered with dark wood.

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Antang cannot be correctly placed in Sir S. Raffles's map of Java, as Mount Klut bears from it S.W. instead of N.W., as it is there made to do. It seemed to me one of the most delightful spots we had yet seen, and the Widono seemed much attached to it, saying he had lived there twenty years, and hoped never to leave it. We reached the passangerang, which was beautifully placed on the brow of a green slope, about half-past eleven, and were saluted as we entered by the clang of a gamelang, and the harsh voices of some dancing girls, who were stationed in the court-yard to welcome us. These had come to Antang, to be present at the market, which was to be held to-morrow. Several antiquities were scattered under the trees on the green near the pandopo, having been collected in the neighbourhood. One of these was a stone, exactly the size and shape of the head-stones in our grave-yards, but about three times as thick. This was covered on both sides and along the edges with an inscription in the old Javanese or Kawi character. The letters, which are of an exceedingly neat and elegant form, were about a quarter of an inch in height, deeply and sharply cut, perfectly clear, and well preserved.* The great house, or passangerang, had two large double-bedded sleeping rooms, well

* The modern Javanese alphabet is given in Crawfurd, in his 2nd vol., and it greatly resembled this in its general character. Specimens, both of the ancient and modern alphabets, are given also in Sir S. Raffles's History of Java.

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furnished. There are usually accommodations for four people in all these places, but I believe there would be no difficulty if the party consisted of more, as the native chief could receive one or two into his own house. Just at nightfall, when the rain had ceased, we heard several deer belling on each side of us, the neighbourhood being said to abound in game. I got 2,066 feet for the height of Antang above the sea.

Nov. 25.—Captain Blackwood and I were out before daylight with our guns to try and shoot a kedang; there was so much delay, however, on the part of our guides, that we did not reach the ground till too late, as the deer seek the recesses of the woods as soon as it becomes broad daylight. We had a very pleasant ramble among some coffee-plantations, and through some open green glades on the hill sides, saw an abundance of peacocks, which we did not succeed in getting near, and plenty of pigs, of which we each shot one, and returned to the passangerang at seven o'clock. Our route had been originally chalked out to pass through Kediri, but partly on account of Hill's sickness, and partly that Captain Blackwood was anxious to return to the ship, we determined now to omit that, and make as straight a course as possible for Sourabaya.

We set off at eight o'clock, and I found a very handsome and excellent bay pony, with my saddle on it, which the Widono, flattered by my praises of

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his stud yesterday, had brought on purpose for me. He seemed to take great pride in his horses, some of which he had procured from Bima.

We passed across the green or central square of Antang, on one side of which was the market-place, now crowded with people, and then rode over a pretty grassy plain, bounded by woody hills, which continued for about two miles. This formed a dividing ridge between brooks flowing on one side to the south, on the other to the north, and we shortly entered a narrow winding glen, descending in the latter direction. The fire and spirit of my excellent little horse soon took me on a-head of the party, and after I had, with some difficulty, persuaded the two spearmen in advance not to attend to my motions, but let me go on, I rode for several miles down this glen alone. It is in that way, indeed, that much of this country ought to be traversed, in order to acquire a full perception and a lasting memory of its beauties. Surrounded by scenery so glorious, all human companionship is felt to be superfluous and intrusive. This glen was one of those so frequent in all these mountains, radiating from the more lofty and central masses of the hills, and divided from each other by narrow and precipitous ridges.

If the country were stripped of its vegetation, and left mere bare earth and rock, its very shape and outline would be striking and beautiful, so numerous and varied are the forms of its peaks and crags,

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and crested slopes, so many are the precipices, and ravines, and glens, each vocal with its brawling brook or flashing waterfall. All these features are imposing for their size and loftiness, and yet so delicately executed, so sharply chiselled or modelled as it were out of the earth, as at the same time to affect the mind with the solemnity of grandeur and the delight of beauty. But when these mountain steeps are clothed with endless woods of magnificent forest-trees having lofty stems and widely-branching heads, and every glen is crowded with stately palms, drooping and elegant tree-ferns, arching clusters of feathery bamboos, delicately-stemmed acacias, and broad-leaved plantains and bananas, all rising from piles and heaps of plants of lesser growth, ferns and creepers and succulent plants with huge round-lobed or variously-shaped leaves; and when among these luxuriant woods, by the side of these falling waters, wind paths and alleys carpeted with short green turf, turning from dell to dell as if searching for the loveliest spots, with a fresh cool breeze rustling the leaves above, and a deep blue sky shining over all, against which, here and there, some tall grassy peak starts up above the loftiest heights of wood, I do not believe that more exquisite scenery ever rose before the imagination, even of a poet in his youthful dreams. The eye of the gazer becomes satiated with every form of earthly loveliness, and to me at least the valleys among these mountains of Java

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have ever since been the very type of beauty, the remembrance of which will, I hope, dwell with me as long as I exist.

At about eight miles from Antang we turned off to the right through a kind of court-yard, and crossed the bed of the brook, and then by a narrow winding path climbed up the right bank of the glen to a small village called Dodo, where we found breakfast prepared for us, but could get no change of horses.

Here the Widono of Antang took leave of us, with many thanks on our part and good wishes on his, and we proceeded by a narrow and rather devious path, up hill and down dale, apparently coasting along the flanks of the mountains. We crossed many brooks hurrying down towards the plains, passed through a succession of lofty, untouched forests, groves of bamboo, large coffee-plantations shaded by tall trees, and open patches of cultivation here and there, till we came out on some broad slopes of alang alang. Climbing up the side of one of these by a steep and slippery path, we found a small pandopo on the top, built, apparently, as a resting-place for the traveller, and that he might have a shelter from the sun while he sat on this open brow to enjoy the fresh air and the noble prospect before him. We found we had been gradually working round the Arjuno, and were now on one of the lower ridges that project from its western base. Ridge rising over ridge, immediately behind

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us, precluded all view towards the east, but due west of us, at a distance of nearly fifty miles, rose Mount Wilis, and forty miles beyond that, again, in the blue distant horizon, was Mount Lawu. Mount Wilis was beautifully distinct, its sides just dappled with a few white clouds floating above them. Both were conical-shaped masses, though without any regular summit cone, and the surrounding country swelled gently up to them with an equal slope on all sides. Between us and Mount Wilis lay the broad valley of the Kediri, expanding towards the north into the great plain of Sourabaya, over which we could just see some low eminences rising at a great distance in the north-west. By far the greater part of the country below us seemed to be untouched forest, the open cultivated parts shewing like mere patches on its surface. A good part of this apparent forest, however, contained coffee plantations, and many plots of cultivated ground were hidden among it; but then, on the other hand, some of the green open spaces were not cultivated, but merely covered with the long coarse grass called alang alang, which is used, I believe, solely for thatching.

From this spot we proceeded over the same kind of country as before, up and down steep and slippery ascents and descents, the surface of the road being generally an unctuous clay, passing frequently between large coffee plantations, till we arrived at a small village called Wonosalam, where we expected to get relays of horses, and coolies. We found

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neither, however, and moreover it ultimately turned out that neither could be got that day. They said the horses were all sick and many of them dead, and the men of the village nearly all absent. It appeared we had acted unwisely in suddenly changing our route and deserting the regular road, where all had been previously prepared for us, for a small cross road, where they had only just received notice of our approach before we arrived.

Finding that we could not get on, we made ourselves as comfortable as we could where we were, and although our quarters were not very spacious, the people did all they could for us, and gave us really a very good dinner, though without the accompaniment of knives and forks or spoons. The kampong was small, containing not more than a dozen houses, the principal of which had a kind of verandah or portico in front, in which we sat, and one tolerably sized room without windows, in which they made up our beds, the family retiring to two other dark rooms behind it. A small rill of clear water traversed the kampong, which was surrounded by a bamboo fence with a wooden gateway. Some new and more spacious houses were in course of erection on an open space about 300 yards off, on the brow of a declivity, the end of a kind of promontory overlooking the valley of the Kediri. Here, under a half-finished pandopo, we passed the heat of the day, admiring the noble views which it commanded. There was no rain this afternoon, though we heard thunder, which seemed to be confined to

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the south side of the mountains. When the sun got low, Captain Blackwood and I took our guns and walked down some steeply sloping coffee-plantations, and then across a slope of alang alang, to some poorly cultivated fields, surrounded with wood, but we saw no game. The country, however, was very pleasant, the soil apparently rich and deep, although of such rapid declivity, and well watered with brooks.

I made the height of Wonosalam above the sea 1781 feet. The name of the headman of the place was Sowondoo, that of his title or office Loora.

Nov. 26.—Some fresh horses and coolies having arrived last night, we set off this morning at six o'clock. I regretted parting with the spirited little horse belonging to the Widono of Antang, when I looked at the miserable-looking little rat of an animal which was intended for me this morning, but was agreeably surprised to find him greatly superior to his appearance, and really wondered at the way he carried me through heavy places, and at his speed and strength. The first part of the way was a similar rolling country to that we traversed yesterday, passing through a succession of coffee-plantations, below which we came down to a magnificent teak forest, where the slopes were more gentle, but the path very narrow, and frequently winding. In the lower part of this forest we continually passed mounds of ancient bricks, partially overgrown with turf, the ruins perhaps of the outskirts of the ancient city of Majopahit, or of some neighbouring town. About nine o'clock we emerged from the recesses of

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this forest onto an open plain, with rice-fields in stubble, galloping across which we came out onto a wide and well beaten road, and turning to the left entered the town of Majoago.

This seemed a very extensive place, the central square being surrounded by large brick houses, standing in pleasure-grounds. We found the Widono was absent when our messenger arrived, but that he had been sent for, and in the meantime a breakfast was being prepared for us. There seemed, however, to be great difficulty in procuring horses, 150 having died, as they assured us, within the last few days, and most of the others being sick. It appears that the climate of Java is not favourable to the horse, and that yearly, at particular seasons, there is a great mortality and sickness among them, more especially in the low country and the towns of the coast.

When my barometer arrived, I found the height of Majoāgo above the sea by its indication to be 116 feet, and I was glad afterwards to be informed by a Dutch engineer officer, that this was very nearly its real height, as determined by levelling along the banks of the Kediri. Barometrical measurements, indeed, so near the equator, admit of much greater certainty and precision than when made out of the tropics. This is owing to the very slight fluctuations exhibited by the column of mercury at any one spot in tropical regions, so that it becomes useless as a weather glass.

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About two o'clock, we contrived to get mounted again, though very indifferently, and proceeded to Majokerto, or Japan. The country was very flat, almost wholly under cultivation, principally occupied by rice-fields, but with some small patches of indigo. It looked, however, dry and burnt up, as well as bare and dreary after the splendid country among the mountains. We frequently passed piles of old bricks, and at one place on the right-hand side of the road, was an alley in a wood, leading to a fine ruin of brick, part of a lofty gateway apparently. This was a fragment of the very extensive brick ruins of the ancient city of Majopahit, which are strewed over a space hereabouts of three miles in diameter. This city was the capital of the last of the Hindoo empires of the island, and was destroyed in the year of Java 1400 (A.D. 1478), by the party who had been converted to Mahomedanism, which, from that time, became the religion of the whole island. At four o'clock, we entered Majokerto, which seemed to be a very extensive place, but of which we only got a very transient glance, as we cantered through it to the house of M. Blankenharden, a Dutch gentleman, to whom we had been recommended, and who received us with the greatest kindness and hospitality. His house was not far from the right bank of the Kediri, and near it was a large sugar establishment belonging to him. The Kediri is here confined by embankments, which rise several feet above the general level of the country. This is about the

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head of its delta, as near Majokerto it begins to divide into several branches, the two principal of which run, one to Sourabaya, the other to Porong, each about thirty miles distant from Majokerto, in a straight line.

Mr. Boyd, an English gentleman, whom we met here, informed us that there were old traditions among the Javanese that Majokerto had once been a seaport town, and that battles had been fought here between the inhabitants and pirates, who were said to be Chinese. While, however, it is certain that the sea once flowed at this spot, as is shewn by beds of marine shells found in the neighbourhood, it is not probable that this ever was the case since man inhabited the country, and that the tradition arose from its being obvious even to the natives that such must once have been the case. It is probable that the visits of some race of Chinese to this country took place at very early periods, for we were informed there were respectable Chinese families in Sourabaya, whose records were continuous for more than 300 years, and gave evidence of their being settled there for that time at least.

We were joined at dinner by a young Dutch engineer who was superintending some large works on the Kediri close by, and spent a very pleasant evening. In the course of conversation it was mentioned that a Dutch clergyman comes once a year from Sourabaya to Majokerto to perform service, and marry and baptize those who may require it,

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and that this year there was an assemblage of thirty-five or thirty-six Christians. It did not appear that there was a single native included under this denomination.

Nov. 27.—We set off in a carriage at seven o'clock this morning for Sourabaya, which we reached at eleven o'clock. About two miles from Majokerto we halted to examine the new works on the Kediri, by which it is intended to bring under control the variations in the volume of its waters. A double system of locks had been constructed, built of bricks and faced with massy blocks of greenstone, both materials being brought from Europe. The locks were wide and deep, and the gates and sluices of great size and strength. The work was not much more than half completed, and I did not quite understand the plan of it; its object, however, is both to facilitate the irrigation of the delta, and to render more certain and regular the navigation of the Kali mas, or golden river, the branch which runs hence to Sourabaya. The cost of the work must be very great, and its style and execution are very creditable to the Dutch Government.

The plain of Sourabaya, which had interested and pleased us so much on setting out now seemed excessively dull, tiresome, and monotonous, and the climate heavy and oppressive, accustomed as we had been for the last fortnight to the fresh air and glorious scenery of the mountains.

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CHAPTER V.

THE CITADEL AND DEFENCES OF SOURABAYA—VISIT GRESIK AND SOME ANCIENT TOMBS—ANIMAL OF A BIVALVE SHELL CHANGED INTO A BIRD—VISIT TO THE SULTAN OF BANKALANG—TIGER FIGHT—DRAMATIC REPRESENTATION—FEVER AND ITS EFFECTS—GONUNG SARI—ISLANDS OF RECENT LIMESTONE—FORMATION OF THE DELTA OF THE KEDIRI—CUSTOMS COMMON TO THE JAVANESE AND THE SOUTH-SEA ISLANDERS.

THE Dutch military officers seemed to have no objection to our visiting the citadel of Sourabaya in their company, and we had frequently to thank them for their politeness and attention. Lieutenant Boon von Ostade had the kindness to take several of us all over it, and explain its different parts.

Sourabaya is surrounded by marshes, which on the land side are more or less cultivated, but towards the sea become regular mangrove swamps. There are three lines of access to the town: the Kali mas or river canal, which runs through its centre and thence into the strait; the south road; and the west road, or that which leads to Grisek. The town is surrounded by wet ditches and a rampart of turf. On the south road an arched gateway of

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brick was now being erected, pierced with loop-holes for musquetry, and otherwise prepared for defending the bridge over the ditches. The west road, where it approaches the rampart, is carried through a mangrove swamp, and makes one or two zig-zag traverses, so that an enemy advancing by it would be exposed at various angles to the fire of the defenders of the town. Where the turf rampart comes round from each side to the Kali mas it joins the defences of the citadel, which defends the river from an enemy approaching from the sea, and keeps the communication open between the town and the shipping if he come from the land side. The citadel is built of granite brought from Europe, and surrounded by a large ditch connected with the river. It is pentagonal in shape, with an outwork at each of the angles, which is mined and can be blown up if necessary. The walls are of great thickness, and contain stabling for 70 artillery horses, and barracks and accommodation for 5000 men. I am not sufficiently learned in fortification to describe it scientifically, but it seemed to me a place of great strength, and as it is only now just finished, it is, no doubt, constructed on the best principles, and with the latest improvements of the military art. I believe, however, that this fortification is exceeded in strength by the one recently finished at Solo, or Surakerta, in the heart of the native dominions.

On *Dec. 4th*, the Resident, M. Pietermatz, was

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kind enough to drive out Captain Blackwood, Lieut. Yule, and myself to Gresik. He called for us at Mr. Fraser's, at half-past six in the morning, in a kind of char-à-banc. Two spearmen, with small penons on their lances, preceded us, and two others followed. We passed through Sourabaya, and changed horses and escort immediately beyond it. We then proceeded along a straight-raised road or causeway, through swamps and marshes, entirely covered at high water, and with many deep channels leading to the sea, which was generally half a mile distant on our right hand. Between the road and the sea were many large square ponds or tanks, in which sea-fish were kept, and which were let out by Government to individuals, principally Chinese, for a considerable rent. Here and there among these fish-ponds, and surrounded by mud flats and mangrove swamps, were small hamlets or kampongs, collections of small huts of reeds and bamboos, perched on a block of raised ground, walled in with a bamboo fence, and accessible by a narrow causeway. Having no trees about them, and being very dirty, they had a most desolate and dreary appearance, and must, I should think, be the very nestling places of fever and malaria.

We again changed horses at a wissel-post, half way to Gresik, which is by the road nearly twelve miles distant from Sourabaya, but our escort was relieved about every three miles by other spearmen, stationed at the roadside.

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About a mile from Gresik, at a bridge over a considerable stream, which must, I suppose, be a branch of the Kediri, we were met by a carriage containing the Dutch and native authorities of the district, with a large body of attendants on horseback, in their gayest dresses, with two or three flags flying, and after stopping for a moment to greet them, we entered the town in procession. Before entering we rose onto some undulating ground, and came down into the back of the town, and passing through a green square in the centre, which I had not seen before, and on which a gamelang were clanging forth a welcome to the Resident, we drew up at the Assistant-resident's house, under a fine row of tamarinds, in the street leading down to the quay.

It appeared that both the authorities by whom we were received were "acting" only. The late Assistant-resident of Gresik had just been promoted to the residency of Rembang, and the principal Controller of the district was acting in his stead. The late Regent, or native chief, had died three days before, and his son-in-law, Regent of the inferior neighbouring district of Lamongan, was now acting as Regent of Gresik. He, with several other of the principal natives, were candidates for the vacant office, and on our alighting, M. Pietermatz, the Resident, held a kind of levèe, each of the native chiefs coming up and making a deep obeisance, and even kneeling and kissing his hand.

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I confess I was hardly prepared for this assumption of the honours of royalty by our excellent and kind-hearted friend, but he seemed to treat it quite as a matter of course, held out his hand, smiled graciously, shook each courtier by the hand when he had risen, and said a few civil words to him, and then continued his conversation with us. Most of the candidates or courtiers were grave-looking middle-aged men, of a decent stoutness of body and sedate manners. They were all richly dressed in green or brown velvet jackets, ornamented with small round gold buttons, with handsome sarongs round their middles, and dark handkerchiefs round their heads. Gold and diamonds were not unfrequent ornaments, either on their shirt studs or on the sheaths and handles of the krisses that were stuck into the shawls they wore wrapped round their waists. They mostly had their legs and feet bare, but one, who seemed to have been riding, had Wellington boots on of a fashionable shape, and white European trowsers and straps under his sarong, combining rather oddly with the eastern appearance of all the rest of his costume. The attendants of one or two carried handsome and massive-looking gold seri boxes, and gold goblets of considerable size, which turned out to be their masters' spitting-boxes.

After a short halt we drove on to Sutjè to see the caves which I had before visited, but where I now succeeded in procuring one of the edible swallows'

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nests, with an egg and a young bird, which one of the attendants detached from an upper part of one of the caverns. In shape it was just like the nest of our house-marten, but much smaller externally, and thinner. It looked exactly as if made of a fibrous semi-transparent isinglass of a slightly yellowish colour.

From Sutjè we returned along the hills to near Gresik, when we turned up to the right to visit some ancient tombs. On the summit of the low hills, in a commanding and pleasant situation, we found some old remains and foundations of temples or other buildings, in stone and brick, and some more modern but still ancient erections of wood. In one of these, which was most elaborately and beautifully ornamented with carved work, both inside and out, representing leaves and flowers, and various patterns of tracery, was a stone tomb or sarcophagus, on which, in a kind of shrine or alcove of white muslin hangings and curtains, was a box containing a sacred kriss. This was the tomb and prisaka, or heir-loom kriss of Sunan Giri, one of the first Mahomedan princes of the country, who died in the Javan year 1400 (A. D. 1475), at the time of the destruction of Majopahit, the last Hindoo kingdom of the island.*

* See Sir S. Raffles's History of Java, vol. 2, p. 131, etc. Susuhunan, Susunan, or Sunan, means "apostle," and was the title assumed by the first Mahomedan kings and princes of Java. Susunan was translated by the Dutch and English into Emperor, and was the title given to the principal native prince who ruled at

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It was a very common-looking kriss, with a waved or damasked blade, and plain wooden handle and sheath. It had, however, a long history attached to it, which the two old Mahomedan priests who shewed it to us seemed very eager to explain, but which I did not rightly understand.*

A crowd of people had now gathered about us, among whom, as we were going away, the Resident ordered handfuls of copper coin to be thrown, apparently in compliance with a well-known custom, as the people seemed all waiting for the scramble that ensued. We then drove down to the cemetery of Gresik, just on the outskirts of the town, and found it a very interesting place. It consisted of a number of court-yards, separated by thick and massive brick walls. Some of the tombs were covered by simple monumental slabs, but others were in build-

Surakerta. Sultan, the second title in dignity, was given to the prince of Yugyakerta, when the native dominions were divided by the influence of the Dutch. Panambăhan, "object of obeisance," is the third title in dignity; it is the one given to the native prince of Sumĕnap, in the island of Madūra.

* The Javanese not only prize those krisses which have remained long in their families, and descended from their ancestors, but also esteem their value greatly enhanced by their being instrumental in any noted deed, or the death of any celebrated or important personage. This gives us another analogy between their customs and those of the Polynesians. See Mariner's Tonga Islands, vol. i. p. 135; also vol. ii. p. 68, where he mentions the high estimation in which the dagger that killed Captain Cook was held at the Sandwich Islands.

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ings like chapels, either single sarcophagi or family groups in more spacious buildings, with separate and handsomely ornamented masses of masonry. On these were inscriptions, either in the Javanese or Arabic character.

In one compartment was a block of black marble, with an Arabic inscription to the memory of Mulâna Ibrahim, one of the early Mahomedan missionaries, who died and was buried here in the Javan year 1334 (A.D. 1408). I was curious to know where this marble came from, as there was no other stone of that kind, and the importation of such a block from a distance must have been at no trifling expense; but nobody could give me any information. Is there any black marble on the coasts of India, Arabia, or Egypt? Its importation even thence, and there is certainly no nearer source for it, unless perhaps in China, argues no inconsiderable zeal and power on the part of the disciples of Mulâna. In another court-yard was the freshly-made grave of the Regent, who died three days ago. A plot of recently strewed earth was covered with white sweetly-scented flowers, just fading, and some men were at work with a wooden frame over it, apparently the model of the tomb about to be erected. Many of the walls and gateways of the court-yard appeared to be of much greater antiquity than the tombs; they were of carved stone, and seemed crumbling with age. Gresik, indeed, was formerly an important place, and is mentioned in the oldest

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histories and traditions of the island, and it is probable that many long-forgotten families of Hindoo, or still more ancient religions, have mingled their ashes in its grave-yards.

The inscriptions and ornamental carvings on some of even the more recent tombs, were of by no means contemptible execution or design, and the whole was a far more interesting place than I expected, and, as well as the tombs on the hill, well worth visiting, and a more detailed examination than we had time to afford them.

From the grave-yards we adjourned to the house of the Assistant-resident, where I need hardly add, we were regaled with a most sumptuous breakfast. The Resident, M. Pietermatz, had told me of a singular story current among the Javanese, and apparently not wholly discredited by some of the Europeans, of a bird that springs from the animal inhabiting a certain bivalve shell. A Dutch surgeon in Gresik had preserved some of these molluscs in spirits, and on the jar being sent for, I found they were large-sized acephalous molluscs, with a strong, dark hairy byssus, but from want of the shell I could not make out exactly to what genus it belonged. It was probably either a large mytilus, a meleagrina, or a pinna, and was certainly not a lepas. It is curious to see the same superstitious idea attached to the inhabitant of a shell in Java, as was once current in Europe with regard to the Bernacle Goose springing from the shell of the barnacle, or lepas

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anatifa. Mr. Lane, in his edition of the Arabian Nights' Entertainments, when Sindbad mentions this singular fact of natural history as one of the wonders of the Indian seas, is surprised at it, and curious to know whence it could arise. There is no doubt that it is an old Javanese notion, and that the early Arab traders, who frequented Java, carried it thence to Arabia and Egypt. A similar notion existing in the north-west of Europe, however, from still more ancient times, is a "very *singular coincidence*," but only shews how prone the early races of men are to draw the same inferences from similar natural objects and occurrences. The likeness of the byssus in the one case, and the cirrhi in the other, to hair or feathers, no doubt, gave rise to the same strange and marvel-loving exercise of imagination.

Dec. 6.—This being the King of Holland's birthday, was celebrated by the firing of salutes, a review of all the troops, and a public ball in the rooms of the Concordia at night. At this, of course, all the beauty and fashion of Sourabaya were assembled. Of the former, there was not a very crowded display, but the whole was managed in good style, except what we should consider the solecism of cigar smoking in the vestibule of the ball-room. Several Javanese gentlemen were present in their native dresses, but I did not observe them join any of the dances.

The Resident of Sourabaya having invited Cap-

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tain Blackwood and a party of the officers of the Fly, to accompany him on a visit to the Sultan of Bankālang, in the island of Madura, on December 10th, Lieut. Risk and Messrs. Harvey, Melville, and I, gladly availed ourselves of the opportunity. The Resident, accompanied by Captain Blackwood and the two Messrs. Fraser, came down to the naval arsenal at eight o'clock, when we all embarked in the Sultan's state-barge, that had been sent over for us. It was, however, dead low water, and on arriving at the mouth of the Kali mas we found the shoals did not admit of our passing out in a boat of such burthen, and we called for tambangans. Messrs. Pym and Soper, happening to pass in one at the time, came to render assistance, and were invited to accompany us. Crossing the strait, we landed on a stone pier, with a small shed or pandopo at the end of it, and on reaching the shore found a kind of guest-house, or passangerang, with a table covered with fruit and refreshments, where we were received by M. Van Graoul, the Assistant-resident stationed at the court of the Sultan, and by one of the Sultan's sons. The latter was a small man, in the uniform of a Dutch cavalry-officer, but with a dark handkerchief tied round his head, in the distinctive fashion that marks the native chief. Four carriages were waiting for us, in which we proceeded along a pretty good road, that for the first three or four miles crossed some very low swampy ground, occupied partly by paddy-fields, partly by fields of Indian

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corn. These led us to the foot of a low range of hills, running nearly east and west, parallel to the shore, half-way up the ascent of which we stopped to change horses. These hills were evidently formed of the same recent limestone I had seen at Gresik; and on breaking open some blocks by the way-side, I was gratified by finding, internally, patches and bands of a cellular structure, distinctly coralline, although all external forms and markings were obliterated. It looked just as if, after masses of coral had been matted together, they had been partially decomposed or melted into one another, as it were, destroying all the external structure, but leaving more or less unaltered some of the inner and central portions of each mass.

After rising onto the hills we found the neighbouring country an open plain, gently undulating, broken here and there by lines and clusters of low craggy hills, with detached belts or groves of wood embosoming the villages, the rest being carefully cultivated, apparently, with crops of Indian corn, and other plants which I did not know, but with little or no rice. The soil was brown, and even barren-looking, after the black alluvial flats or rich volcanic loams of Java. At one place the road passed for nearly a mile through the plantations of a village, and had then a very pretty aspect, as rows of bamboos, springing from each side in clusters, arched entirely over-head, and were backed by cocoa-nuts, bananas, and other fruit trees. We saw

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a great many people along the road, who all stood reverently aside to let us pass, and many turned their backs on us, which is a native mark of respect, meaning, I suppose, that the inferior is not worthy or does not dare look upon his superior.

On entering Bankālang, we found the road lined on each side by spearmen, who stood about three yards apart from each other, holding up their long lances, and each in a different posture, frequently a striking but rather theatrical attitude. Behind the spearmen were other people squatted down, just in front of the bamboo fences of the kampongs, between which the road passed, and from which the music of the gamĕlang, or native band, resounded on all sides. We came in at a corner of the great central square, or "green," and passing a large brick mosque, before which a guard of infantry was drawn up, with a standard, that was lowered as we went by, we turned short to the right, and driving down the middle of the square, reached the gate of the Sultan's palace. This gateway was in a brick wall, in front of which was a broad ditch, crossed by a wooden bridge, and defended by a few guns. Here native infantry, in a Dutch uniform of blue and yellow, and armed with musket and bayonet, took the place of the spearmen, and lined the road. After passing one or two other walls, through similar gateways, we halted in front of a very large

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pandopo, where stood the Sultan,* ready to receive us. He was of the middle height, with a slender figure, a good-humoured, thin, shrivelled countenance, and with very easy and polished manners. He was dressed in a close black silk jacket or short frock, a dark sarong, a white shirt with diamond studs, and a dark handkerchief wrapped close round his head. He wore on his breast a diamond star, the order of the Netherlands Lion, of which he is a Knight, and on his hand he had a large diamond ring, said to be worth 30,000 rupees. He had also, but did not wear, a black three-cornered cocked hat, with a fringe round the edge, and a handsome diamond aigrette in front, which he afterwards told us, with some exultation, had been presented to him by the English Governor, Sir S. Raffles. When we had all alighted, and been introduced to the Sultan, and one or two European military officers, who seemed to be in attendance on him, he led the way through the pandopo, which was crowded with a collection of European carriages, of which he is a great fancier, and then passing through another gate, he conducted us to the state apartments. As soon as we entered this enclosure, two bands, one native the other European, saluted us with a simultaneous clangour

* I have just seen in the newspapers mention of the death of this native chief, but no account of his successor, and it is probable that his dominions are either now or shortly will be, formally absorbed into those of the Dutch. (*April*, 1847.)

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of overpowering loudness. The native gamĕlang was a very large one, and all the various instruments of great size and power, while the European band consisted of almost every kind of trumpet and brass musical instrument. The state apartments consisted of a great irregularly shaped hall, which resembled a pandopo in structure, being, in fact, only several contiguous roofs, supported on pillars and square masses of brickwork, the spaces between which were entirely open below. The roofs were of that structure which is common in the east, rising by successive steps to the centre, looking on each slope like the under side of a staircase. From the centre of each roof, or compartment of the hall, hung a large chandelier, while handsome lamps were suspended in all directions. The floor was matted, and occupied by several tables, sofas, and chairs, while the pillars or pieces of wall were covered with French mirrors, prints, and ornaments, and opal vases with similar nicknacks and drawing-room toys lay scattered about on small slabs and tables. Sofas and chairs were now arranged in a horse-shoe shape in the first compartment of the hall, and the Sultan taking the middle place, with Captain Blackwood on one side and the Resident on the other, we all sat down according to our rank, and were served with tea and cakes. About a dozen of the Sultan's sons were present, two of whom were in Dutch uniforms, holding commissions in that service: the youngest was a very

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pretty boy, about ten years old. His favourite son, however, the third, whom he has named as his successor, was now sick. A Frenchman and a Prussian were present in uniform, both being in the Sultan's service—the one training his infantry, the other his cavalry. He always keeps under arms a body of one thousand infantry and about sixty horse.

After a slight refreshment, carriages were ordered, and we went to see a fight between a buffalo and a tiger. This took place in a large court-yard on the north side of the square, in the middle of which was a tall cage of square posts, driven into the ground and partly roofed over. At one side of it was a stage for the principal spectators, while the people crowded round it on the ground. It was a wretched sight, for the tiger, though a large and once powerful animal, seemed wasted by disease, starvation, and old age. It was a well known animal, and had killed at different times seven human beings, but it had now been caught more than twenty days, during which time it had refused all food. Without a thought of fighting, it lay crouched on the ground in a corner of the cage, while the buffalo, one of the large mud oxen, stood looking at him very unconcernedly. Lighted torches and scalding water were applied to him, but the poor old tiger only yelled, and tried to crawl away, while the buffalo, as soon as he moved, gave a snort, and walked up and butted him with his horns against the bars of the cage, and after once or twice fairly tossing him into the air, and letting him fall on his back, he left the poor

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brute lying motionless. Altogether, it was not only a cruel spectacle, but a stupid, uninteresting, and disgusting one.

We then returned to the palace, and sat down in the centre of the hall to a splendid breakfast, or rather a dinner, at one o'clock. A long table was covered with a very handsome service of china, glass, and plate, for about thirty persons, and the entertainment consisted of soup, fish, flesh and fowl, in infinite variety, succeeded by cakes, sweetmeats, fruit, and abundance of French wine and English ale and porter. The Sultan sat in the centre of one side of the table, and the Resident opposite him, and the whole was conducted quite in the style of a European gentleman's house. The revenue of the Sultan is about 8,000*l.* per annum, of which 4,000*l.* is derived from the rent of some birds'-nest caves on the north side of the island. The western half of the island of Madura is his patrimony, the eastern being under the rule of the Panambăhan of Sumĕnap, the same who is mentioned by Sir S. Raffles with such commendation for his literary attainments.

About half-past one, and before breakfast was over, it began to rain heavily, and continued for three hours. This interval we were expected to spend in a siesta, and everybody retired to his bed-room. The resident officers drove off in their carriages, and the good-natured Sultan immediately began pottering about, shewing us to our respective

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apartments with an alacrity resembling that of an old landlady doing the honours of her establishment. Behind the principal hall was a brick building, in the chief room of which was a large kind of throne, or seat of justice, or something of the kind, overshadowed by a canopy, with several pillars in front, and one or two cushioned seats, and other things which were covered with coloured hangings and draperies. The room being very dimly lighted, I could not make out its exact form, but was informed that it was the place where the royal marriages were celebrated and other important ceremonies performed. On each side of this room were two spacious and handsomely furnished bed-rooms, while on one side of the court-yard, which surrounds the hall, were other buildings containing more bed-rooms, so that we were all very well accommodated.

On returning to the hall at five o'clock, I found the Sultan amusing himself by playing on the two-stringed fiddle, and leading a small but very finely toned and highly ornamented gamelang, played by picked musicians. His fiddle, though it still had a cocoa-nut covered with parchment for the sounding board, was adorned with ivory, gold, and jewels; and though nothing could render pleasing the harsh and squeaking tones of the instrument, he seemed to play with considerable taste and skill, and was accompanied by the band with much delicacy. I sat down by him, and they played one or two tunes of a slow, plaintive, and very pleasing character, the air

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being interrupted now and then by an irregular quick turn and a rapid repetition of a few single notes, and then flowing on again as before. Presently he called an old fellow, seemingly his buffoon or jester, who, squatting down before us, commenced singing, in a loud, harsh voice, a kind of burlesque song to the music, grimacing and contorting his countenance, and imitating the cries of fowls and geese, and other birds and animals. The Sultan laughed very heartily, although it seemed quite a customary thing; for as soon as the old man had finished his strange cries and gesticulations, and "left his damnable faces," his countenance at once fell into a settled serious expression, as if tired of his task, but resigned to go on with it as often as it should be required. This sudden contrast between ridiculous action and deep gravity was to me the most amusing part of the exhibition. The Sultan then exhibited to us some very handsome cocks, apparently crosses between different domestic and wild breeds. They were kept in large cages, entirely for show, and were certainly most beautiful and noble birds. As it grew dark, several conical stands with many arms were placed about the court-yard, on which small glasses filled with oil floating on water were set for lamps, and gradually all the chandeliers and lamps in the hall were lighted up. At six o'clock the Sultan and his sons retired through a door in one corner of the court-yard to the mosque, or private chapel, to perform his even-

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ing devotions, which lasted till eight. I could hear the chanting of the priests, and it put me in mind of rather a noisy and discordant chorus of a drinking song. The Sultan having been rather a free liver in his youth, had latterly become religious, and was much influenced by his priests.

At eight o'clock the European officers returned in full dress, and the Sultan and his suite came out from chapel, and preparations were made for the evening's amusement. In one compartment of the hall was a round table, with cards, and the Sultan, who is still fond of a little gaming, immediately formed a party for vingtun, in which the greater part of the company joined. We observed that his sons treated him with great respect. One of them, in a European uniform, on coming in to join the card party, assumed a crouching attitude, and first went and made a rapid kneeling obeisance, with joined hands raised before him, to his father, before he took his place at the table. Instead of joining the card party, I amused myself with examining the preparations for a drama in the Javanese style.

At the entrance of the hall, a large screen of white calico, about eight feet high and sixteen or twenty long, had been erected, behind which, in the centre, hung a very bright lamp. On the floor lay a large recently-cut stem of a cabbage palm-tree, in which were stuck several hundred puppets. These figures were cut or stamped out of thick leather, and were gilded and painted, and said to cost

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from thirty to sixty rupees each. They represented men and women, deities and demons, most of them with extraordinary towering head-dresses and flowing garments, many with grotesque or hideous features, and all more or less distorted. There were some well known characters in native history, tradition, or romance, with several others of buffoonery. The whole figure was motionless, except the arms, which were jointed, and capable of being moved by strings pulled by the exhibitor. From the base of each figure proceeded a long thin spike, by which it was stuck into the cabbage-palm till wanted, and by which, when exhibited, it was held, so that the hand of the exhibitor might not be seen. In the centre of the screen, which was raised a foot or two from the ground, was a carved scene, representing two pillars, about three feet apart, with a wall stretching on either hand, and in the opening between these two pillars, which might be taken to represent a large gateway, the figures or puppets were held. The spectator, now being seated on the other side of the screen, saw the shadow of the walls and gateway, and those of the figures, strongly projected on the white calico screen by means of the bright lamp a little behind them. The exhibitor being seated on the ground, so that none of his shadow should be seen, and the gamelang ready, the play commenced at eight o'clock. Striking with a wooden hammer on a board, as a means of regulating the tunes, or the time and measure of loudness

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of the gamelang, the exhibitor commenced, in a loud and sonorous voice, a kind of recitative, something between the tone of a plain narrative and a chant. Then successively bringing different shadows on the screen, he put them in action by moving them and pulling the strings which raised and depressed their arms.

The subject, I believe, was taken from the ancient traditions and romances of the country, and was probably familiar to the people, but to me utterly unintelligible, and it soon became very tiresome and monotonous; so after enjoying a laugh at the antic gestures of the buffoon shadow, which was now and then introduced, and whose motions were sufficiently comic, I stole away to a sofa in a remote corner of the hall, and resigned myself to a very comfortable nap till about eleven o'clock, when an attendant came and woke me with the intelligence that they were just going to dinner.

A pretty exact repetition of our one o'clock breakfast now took place, being, however, if possible, a little more elaborate. I now first tasted birds'-nest soup, the excellence of which, however, was by no means due to the birds'-nests, which are quite an imaginary dainty, and only perform the part of isinglass. The only other remarkable thing was some of the very best pumelos or shaddocks I ever tasted, the Sultan's garden being celebrated for that excellent fruit.

After dinner, or rather supper, the Sultan rose,

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and in "*a neat speech*," in Malay, proposed the health of the Resident, and himself led the "hip, hip, hurrah!" with which it was received; this being returned by the Resident, the Sultan then proposed Capt. Blackwood and the English officers with similar honours, to which Captain Blackwood returned thanks through the Resident, and proposed the health and prosperity of the Sultan's family, and on the cheers for this toast subsiding, we broke up from table. We then strolled about the hall, smoking cigars, and the Sultan, in the few words of English he knew, pressed on our acceptance "a glass of grog" before we retired for the night.

All the time these very English proceedings were going on in the main body of the hall, at the far end of it was progressing the Javanese dramatic representation: the clang of the gamelang and strong voice of the reciter filled up the pauses in our conversation, our laughter, or our cheers, and attentive rows of people were squatted along the sides of the hall, with their eyes riveted on the screen, and apparently absorbed in the interest of the piece. When we retired for the night the Sultan was preparing to take his place before the screen, and whenever we woke in the night we could hear the sound of the gamelang uninterruptedly.

Dec. 11.— At daylight this morning, on coming out of my bed-room, I found the drama of last night just finished, the lamp was fading, and the people were just beginning to take down the screen,

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and were carrying away and packing in two great wooden chests the puppets that had been used. The Sultan came to meet us, having been all night engaged with the play, which had altogether lasted for ten mortal hours, during the whole of which time the same gamelang had played, the same man moved the puppets and recited the story. As soon as we were all assembled and had drunk a cup of coffee, we took a grateful leave of the Sultan and his family, and then mounting our carriages, returned in the same order as we had come, and finding the barge ready for us, crossed over in it, and reached Sourabaya at ten o'clock.

Dec. 14.—I had been hard at work hitherto, during the time when I was not making excursions, in sorting, arranging, re-labelling, and packing up my specimens, which to-day I fortunately finished in time to go by a ship about to sail for England. I now hoped to have some leisure to make inquiries on many points concerning which I felt an interest, and which I could only hope to learn on the spot. I also hoped to be able to visit the ruins of Majopahit, and re-examine the tombs at Gresik, when I unfortunately was attacked with fever. I mention this, partly to excuse and account for the incompleteness of many pieces of information in the foregoing sketches, and partly to describe the origin and the effects of the fever itself. On the 13th, after a hard day's work packing up, I went off to dine on board the ship, and about nine o'clock,

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feeling very tired, returned to the town in a tambangan, immediately on sitting down in which I fell asleep. It being nearly low water we were a long time getting into and up the canal, and on arriving at the stairs I found I had been asleep more than an hour, with my hat off, exposed to the night-dew and the miasmata of the neighbouring marshes, and the putrid bed of the canal. I felt very unwell the next morning, but supposing it to be a mere cold, took no notice of it, and having promised Mr. and Mrs. Dean to come down to Gresik and dine with them, and accompany them to a ball at Mr. Lott's house, of that town, I went down by water with Lieut. Boon van Ostade, and a party. The ball commenced between six and seven o'clock on the brick floor of a large saloon, and was an exceedingly pleasant party, graced by several "excellent specimens" of the beauty of the Dutch ladies, both of pure and creole blood, but to my extreme horror, they continued dancing till six o'clock in the morning, and I was unable to get away. To a man with fever in his veins this was by no means a cordial, and as soon as our boat regained Sourabaya I succumbed to it. It appeared, however, after all, of trifling character; Dr. Muirhead removed me on board, where it went off in four or five days, and in ten I was able to walk about, apparently as well as ever. But I no longer felt the same person; languor and lassitude took possession both of mind and body, and I seemed to pass at once into the state of

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those who have been long resident in hot countries, and to have acquired all their listlessness and indifference, want of energy, and want of curiosity. Neither was this state of mind transient; I could not overcome it for two or three months after we left Java, and it was not till I had enjoyed the fresh sea-breezes of Torres Strait for a month or two, that I again felt myself fit for active exertion, or my former love of, and delight in, explorations and excursions revived. I now, for the first time, knew how to account for and excuse what at first seemed to me the blameable inertness, indolence, and indifference to anything beyond the comfort of the passing hour, the want of energy and action so almost universally characteristic of the resident in hot climates. The European, at his first arrival, brings with him the feelings and powers belonging to a temperate zone, which are acted on by the powerful excitement of new and delightful scenes, and he wonders at and contemns the apathy of the native or the resident European. Either by the sudden attack of sickness or the gradual action of the climate, however, his own energy is undermined, and he eventually falls into the same listlessness and love of repose.

Another apparent consequence of the fever, but a much more temporary one, was an attack of "prickly heat," as it is called. This is a kind of rash, or eruption, which breaks out on various parts of the body, especially where the clothes are tight

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or folded over each other, and which always appears on the least accession of perspiration. When slight, it is of no consequence, but when it acquires the virulence with which it attacked me and several others on board, it becomes a real infliction. The body seemed to be surrounded by an invisible padding of the finest possible needle-points, and every motion, whether of a limb, or of the muscles of the hand or face, seemed to cause them to be pressed into the skin of the part which was moved. Drinking a glass of water, or doing anything which caused a flow of perspiration to the skin, produced this exquisitely painful sensation over the whole of it, from the crown of the head to the sole of the foot, and every motion, or pressure for some minutes after, sent fresh gleams of tingling flashing along it. It was said to be a healthy sign, but no malignant disease could equal it in continual annoyance. It bears the exact relation to a mortal fever, that a cloud of mosquitoes does to a tiger. I would always rather run the chance of the one seizing me at once than have the perpetual irritation of the other.

On *January* 4th, the Prince George returned from Singapore, having waited till the last minute in the hope that either the September or October mails would arrive from England, both being over-due. Neither of them came, however, and I thus was obliged to enter on the second twelvemonth without news from friends at home, and it was more than half expired before I received any. A year and a

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half without news from home is a period which few persons are now compelled to pass in this age of rapid transmission of intelligence.

On *January* 8th, I drove out with Dr. Muirhead and Mr. Boyd to a place called Gonung Sari, about five miles south of Sourabaya, where there are some petroleum springs. Here, close on the left bank of the Kali mas, is a small tract of undulating country, like that at the back of Gresik in appearance, but not rising more than 100 feet above the sea. It is composed of the same recent limestone as that of Gresik and Madura, but contains beds of fossil-shells, chiefly, if not entirely marine, but rather resembling those of an estuary. It contains nodules of chert also. At several places in this patch of limestone rise springs, impregnated with petroleum, which in the one we saw was a mere scum on the water, but in one of the others was said to be very abundant, and to be gathered or skimmed off in large quantities every morning. It was used for every purpose that cocoa-nut oil is put to, even for frying cakes and confectionary in, to which, however, it communicates a tarry or smoky flavour. This patch of limestone, which appeared not much more than a mile across, is surrounded by the low land of the delta of the Kediri, and was probably once an island off its mouth.

On *January* 9th, the Resident, M. Pietermatz, gave us a very handsome dinner, which he apologised (quite unnecessarily) for not having done before, in

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consequence of illness in his family. All the principal Dutch officers, civil, military, and naval, were present, and the style of the whole affair was very good, and the kindness and civilities of the Resident and his compatriots to all of us were indiscriminate and abounding. Major Müller, of the Engineers, gave me some interesting facts regarding the delta of the Kediri. He said that there were many spots like Gonung Sari dispersed about the delta, where marine shells and corals were abundant, a few feet below the surface of the ground. He also told me that they had sunk an artesian well in Sourabaya, hoping to strike down into the Madura limestone, below the alluvial deposits, and procure purer water than that of the river. In this operation, after penetrating through a great thickness of sand and sandy mud, they came down to very fine mud, or clay, which they sank into for 200 feet, without getting through it, when their tubes collapsed, and the work was abandoned.

All this shews plainly that there existed once a clear deep sea, in which grew corals and shells, the former in great numbers; and from their detritus a great mass of limestone was formed. This was partially elevated, so as to form islands, one of which was part of Madura, the others its neighbouring islets, and those which are now united to the land. Into the sea thus shallowed, but still in places several hundred feet deep, the Kediri, after

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flowing through the previously or simultaneously-formed volcanic district of Malang and Antang and Japan, began to pour its muddy waters; that the finer sediment of these flowed far out, making shoaler all the neighbouring sea, and making a base of more than 200 feet at least in thickness, on which coarser and coarser matters were piled as the delta of the river advanced, and that this process went on till many of the smaller islands were absorbed in the growing delta, and connected by its marshes. Some slight elevation might, and probably did, also take place, as the slope of the Kediri through the delta is now considerable, and its current strong; neither does the tide affect it far up from its mouth, and Madjoago, apparently on a dead level from the sea, is really about 100 feet above it. Still, even independently of any movement of elevation, the increase of the delta is going on, and the strait of Madura getting daily shallower, and if it had not been for the tide which sweeps through it, long ago it would have been converted into marshes. This tide has carried out from either end of the strait great quantities of detritus, and strewed it over the neighbouring seas, till they are now likewise filling up. The result will be, I believe, the formation of a bar at each end of the strait, obstructing and gradually prohibiting the entrance and exit of the tide. If this be not artificially removed, a mere pool will at last be

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left between Sourabaya and Madura, which the Kali mas will gradually convert into marshes, and finally, all, except its own narrow channel, into dry land. The delta of the Kediri, moreover, is only separated by the narrow range of low hills behind Gresik from that of the Solo River, a much larger and more important stream, draining the very centre of the island, and being by far the largest river in it. I did not see anything of this river, or the north-western part of the strait, but from the maps and descriptions it appears to be bringing down large deposits of detritus; and I think the action of the two rivers must at no great distance of time utterly obliterate the strait. During the war at the beginning of this century, large frigates traversed the strait of Madura; now, even common merchant ships must quit it before they are half loaded, and complete their cargoes at Point Panka or Passaroŋan, according as they are bound to the westward or the east.

Jan. 12.—At eight this morning we sailed from Sourabaya, to the great relief of most of us on board, as we had become heartily tired of it. I was told that rice was dearer now than it had ever been known before, being 15 rupees a picul, and that scarcity, approaching even to famine, was beginning to be felt, that many people were searching the woods for wild roots and fruits for a subsistence, and considerable fears entertained of the result.

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As, however, I never heard any more of it, I suppose it did not turn out so bad as was expected.

Dr. Zollinger told me that the names of places in Java were often changed by the natives in consequence of any great sickness or other calamity happening there. This seems to be analogous to a custom among the Polynesians of changing the names of men or things on any great event happening to them.—(See Vancouver's Voyages, book 1st, chap. 7th.) Another very striking custom in Java, which I have not mentioned, is, that the bride and bridegroom in the marriage procession are always smeared over the upper part of the body and the face and arms with a thick yellow paste. Now, in the Hamoa or Navigators Islands the same practice is kept up, and the bride especially is smeared with sandal-wood oil and turmeric, making the skin deep orange.*

In the island of Rotuma, also (as described in a paper contributed to the "United Service Journal," August, 1831, by Mr. Bennett), both the bride and bridegroom are said to be smeared over with yellow paint. I have noticed other striking analogies between the Javanese and the Polynesians in the preceding pages, whenever we met with a custom or observance in the one resembling what I had read of in the other. I have no doubt that a more intimate acquaintance with the several people would discover other resemblances still lingering, in spite of their

* See Mariner's Tonga Islands, vol. i. p. 162.

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present difference of religion, government, and general circumstances.*

* See, upon these and other kindred topics, the work before referred to, the 5th vol. of the last edition of "Dr. Prichard's Researches into the Physical History of Man." I much regretted that I never read this till after my return to England. The only edition in Captain Blackwood's library on board the Fly was an old one, without the part relating to Polynesia and the Eastern Archipelago.

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CHAPTER VI.

NOTES ON THE GOVERNMENT OF JAVA—ARISTOCRATIC CONSTITUTION OF DUTCH CHAMBERS PRODUCES AN ARBITRARY COLONIAL GOVERNMENT—GOVERNOR-GENERAL AND COUNCIL—MAATSCHAPPY (COMPANY OR FACTORY) STRICT COMMERCIAL MONOPOLY — DUTCH POSSESSIONS IN THE EAST INDIES — INTERNAL GOVERNMENT OF JAVA — DIVISION INTO RESIDENCIES—SUBORDINATE NATIVE AND EUROPEAN OFFICERS—PER CENTAGE ON PRODUCE — NATIVE COURTS OF JUSTICE—ADJUSTMENT OF LAND TAX—OTHER TAXES—FORCED LABOUR RATES — DUTIES ON IMPORTS — EUROPEANS IN JAVA—NO FOREIGNERS ALLOWED TO RESIDE—EFFECTS OF THE GOVERNMENT SYSTEM ON EUROPEANS —EFFECTS ON NATIVES—CHAIN OF CITADELS—PROBABLE RESULTS OF A CHANGE OF SYSTEM—NOTE ON THE SUGAR CULTIVATION.

I AT one time hoped to have been able to acquire a more complete and well defined notion of the nature of the Dutch Government of Java than I now find myself to possess. I had considerable difficulty in acquiring information on the spot, partly from my ignorance of the Dutch and native languages, and partly from the apparent reluctance of most people to talk publicly on the subject. The scattered notes which I am now going to lay before the reader are principally the result of many desultory conversations with different people more or less per-

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fectly acquainted with the subject, while I was in the island. I have also received some valuable information since my return home from a gentleman whose name I wish I was at liberty to mention, and thus publicly acknowledge my obligations to him.

In the first place, as regards the home government of Holland, it appears that the middle and lower classes of the Dutch people are but poorly represented in the chambers. This aristocratic constitution of the Dutch Government at home gives to its Colonial department an almost purely arbitrary or despotic character. The East Indian dominions of Holland are ruled over by a Governor-general and a Council. The Council is composed of four members and a vice-president, the Governor himself being president: it can, however, only offer advice, has no power of its own, and the Governor can, if he please, act quite independently of, and totally contrary to, the advice of his council. The Colonial Minister of Holland is, of course, ostensibly responsible to the Chambers, and it is from him that the Governor-General receives his orders. I believe, however, that this responsibility is almost a nullity, and that, virtually, the King of Holland is the absolute monarch of his East Indian dominions.

There is another body, which, although not part of the Government of the Netherlands East Indies, must, from its nature, have great influence and power there, so great indeed that it seems to be principally for its benefit that the Government is

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administered. This is the Maatschappy (company or factory), a commercial company, established by the late King of Holland in 1824, with a charter giving it a strict monopoly of all commerce to the East Indies for twenty-five years. An extension for ten years more has recently been obtained by the company. The late King of Holland was himself a large shareholder in the company, and the present King, of course, inherits his father's shares, and with them his interest in the pecuniary welfare of this factory. Most of the Members of the Chambers are likewise large shareholders in the Maatschappy, and of course have an interest in supporting its monopoly. The Maatschappy, independently of its monopoly in supplying the islands with all necessaries, acts as agent for the Government, receives the produce monopolized by the Government of Java, carries it home, sells it, and accounts for the proceeds to the Home Government.

The Dutch Government are in debt to the Maatschappy about 40,000,000 of guilders (3,340,000*l.*), and as security for the principal and interest of this sum, they have mortgaged to it all the produce received in the East Indies, and the Maatschappy, when it has realised this produce, only pay proceeds after deducting the interest on their loan and their heavy commission as agents.

The finances, however, both of the colonies and the home government have latterly been so much deranged, that the Maatschappy as well as the

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Government see the necessity of some sort of modification of this strict monopoly. To relieve the distresses of the colonies, and in the hope of introducing some specie into them (of which, except in the shape of debased copper coin, they are utterly destitute), the Government, it is said, propose to release one-third of the sugar produced by parties having contracts with them, on condition of those parties delivering the other two-thirds of a superior quality; the expenses of freight and Maatschappy commission would thus tell less heavily on an article of greater than of lesser value. This the Government can do without infringing on their contract with the Maatschappy, because produce has lately so much increased, that the two-thirds reserved would more than cover the amount necessary for satisfying the demands of the Maatschappy.* By this measure it

* I cannot resist the temptation of making some extracts from a letter on this subject I received from an esteemed correspondent, well acquainted with Holland and its colonial affairs: "Those who do not look well into these matters, will be led to suppose that it is owing to this factory (Maatschappy) that the great increase in the Dutch mercantile navy, and the increase in the revenue derived from the colonies has taken place. Far from it. Monopoly has been tried by every nation, and found to be ruinous to a country. Who are they that are now profiting by the present measures? Why, the rich capitalists, the owners of Maatschappy stock, a few shipowners and manufacturers; but how are the poorer classes situated? Why, labouring under heavier taxes than any other country in the world. Dutch manufactures are forced into Java, to the exclusion of foreign, at

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is calculated that there would be added to the present trifling free produce of Java about 300,000 piculs of sugar, or 18,500 tons.

The Dutch possessions in the East Indies consist of—

1. Part of the island of Sumatra.
2. Almost the whole of the island of Java.
3. The islands of Banca and Billiton.
4. The islands of Bintang and Linga.
5. Large parts of the southern portion of the island of Borneo, which have recently been incorporated into one or two regular residencies, and assimilated to their Javanese possessions.

a loss of 12½ per cent. to the colonial revenue, the duty on Dutch cottons, for instance, being 12½, while that on foreign is 25. The factory only charter Dutch bottoms to carry home Java produce, and pay 75 per cent. more freight than they would be obliged to pay by foreign vessels." . . . "Where is now the mercantile spirit, the spirit of enterprise, that formerly existed in Holland? completely dead. There is hardly a merchant in the country: the Maatschappy is the only merchant. Dutchmen who have capital place it in the factory stock, receive their interest, and smoke their pipes in comfort. Those who have no capital are shopkeepers, or clerks in German houses, who act as purchasers or transmitters of Java produce into Germany. And what is the actual state of the finance in Holland! Deplorable! Notwithstanding all the fine statements made by Finance Ministers (and there is no people in the world more clever at figures than the Dutch) there is not the least doubt that Holland is bankrupt, and it is only wonderful, notwithstanding the warnings that have been given, that England has not become more wary, but still holds largely of this stock, because it pays a high interest. It will explode some day, like the United States Bank."

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6. The Macassar government, including parts of the islands of Celebes and Sumbawa.

7. The Molucca islands, and some detached outlying posts on several other islands.

8. The south-west half of Timor, and the neighbouring small islands.

9. To these may be added the recent conquests in the island of Bali.

I am only very imperfectly informed of the nature of their government, or the extent of their power in these different places; but believe it to be, as nearly as circumstances will permit, assimilated to the system established in Java, respecting which I shall now lay before the reader the following notes.

In the centre of the south side of the island of Java is a considerable but now greatly reduced tract of country, still under the nominal rule of the native princes, who have "viceroys over them" in the shape of Dutch Residents at their courts. These two native princes are styled the Emperor or Sunan of Surakerta, and the Sultan of Yugyakerta. Madûra is also divided between the Sultan of Bankâlang and the Panambâhan of Sumênap, who are likewise controlled by Dutch Assistant-residents. The remainder of the island of Java is divided into about twenty districts, each of which is called a Residency, from being governed by an officer styled a Resident. Each Resident has under him two sets of officers, Native and European. His Residency is divided into districts, over each of which

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is placed a native chief called a Regent, and an European officer styled Assistant-resident. These are again subdivided, and each Assistant-resident has under him several Controlloors. The latter are of three classes, differing in rank and salary, a Controlloor of the third class being the lowest European civil government officer. Each Resident has also a secretary, who takes rank next to an Assistant-resident. An Assistant-resident merely acts as a police magistrate, and can only inflict petty punishments, such as confinement in the stocks, or twenty-five strokes of a rattan, or else as the organ through whom the orders of the Resident are transmitted to the Regent. In the towns of Samārang and Sourabaya, however, there are two Assistant-residents, one for the police, the other for the financial department. The Controlloors have only to inspect the cultivation of the land, assess it for the land-tax, look after the condition of the roads, bridges, etc., and report generally on the state of the district committed to their charge. Neither Controlloor nor Assistant-resident can of his own mere motion give orders to or assume authority over the native chiefs.

The native government officers are, first, a Regent, whose district is styled a Regency, which is generally co-extensive with that of an Assistant-resident. A Regent has a secretary or deputy, called a Pati. Each regency is also divided into districts, over each of which is an officer called in some places

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a Widono, in others Demang, who has likewise a secretary or deputy, called a Bukkel. The principle of subdivision is still further carried out, and over the successively diminishing portions are officers, whose title and rank are Arris, and his deputy a Bow Arris; Loora, and his deputy Patinghi. These last have only a few kampongs or villages under them, but each kampong has also its little chief, called Kapalla Kampong (head of the kampong).

Rongo is the title given to an officer who, with the power of a Regent, governs a smaller and less important district than is usually given to a Regent, to whom his rank is considered next in order. These titles are those in use in the eastern part of the island: towards the west, similar offices go under different native titles. Neither is the series in all cases complete: sometimes the officer, whatever his title, who equals a Widono in rank and situation, has no lieutenant or bukkel, or even no arris under him. In this case he does their duty, superintending matters himself, instead of merely transmitting orders to his subordinates.

In this way the whole population is, as it were, marshalled and arranged under a chain of officers, like an army. The people all live in communities, every man being obliged to belong to and reside in one particular kampong, which is fenced in, is governed by its kapalla or head man, has its constable or police officer, called Kadjenaman, and is guarded

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at night by one or two sentinels, armed with spears, stationed at the gate. Each kapalla kampong is responsible for the good behaviour of his kampong to his next superior officer or loora of the district, to whom he makes his reports, and from whom he receives his orders, and who has four or five more kampongs under his superintendence, as the case may be. From him the chain of subordination proceeds regularly up to the Regent, each officer being answerable for the district placed under him. All these native officers are appointed by the Governor in Council, the Residents not having the power of appointing any one above the degree of the head of a kampong or a native constable. When an office is vacant, however, the candidates send in written applications for it to the Resident of the district, who appends his own notes and recommendations to them, before he transmits them to the general government. The kapalla kampong is most commonly elected by the inhabitants of the kampong. When a village is composed of only one kampong, it is called a dasar; but when of more than one, it is commonly termed cota or town. Each Regency has also its panghūlu or head priest, and its Head Jacksa and Jacksa, who have the management of the native police, and act as procurators-fiscal. There is also a native collector and sub-collector of revenue.

The Regent makes his reports to, and receives orders from the Resident of the district only, and no inferior European authority has any legal power to

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give or enforce orders on any of the native authorities, not even the lowest. In the distant parts of the Residency the orders of the Resident are transmitted to the Regent, through the Assistant-resident, but the latter officer can give no orders of his own, nor can he interfere directly as to the execution by the native authorities of those orders he transmits to them. As soon as he has communicated them to the Regent, they are left to flow on in the native channels, and the result is reported by the Controlloors and Assistant-resident to the Resident himself. Each Controlloor, if I was informed correctly, has to keep a journal, a copy of which he transmits to the Assistant-resident of his district, and also to the general government at Batavia.

All the government officers, both native and European, besides a regular salary, are allowed a certain per-centage on the produce raised in the district. This per-centage is calculated on the produce of each Residency, and the whole is divided among the officers of that Residency on a scale according to their rank.

The courts of justice are both native and European. In the former, when held in the larger towns, the Assistant-resident presides, assisted by a Secretary and by the Regent, the head of the Chinese and the head of the Malays. All cases against or between Javanese, Chinese, Arabs, and Malays, are tried in these courts. In the remoter parts of the country, the native authority presides

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in these courts, except in serious cases, for which there is a European circuit judge. Appeal from these courts, in important matters, lies to the High Court of Justice at Batavia.

All the land is the property of Government, no native, whatever his rank, having any property in the soil. Each kampong, or community, has a certain cultivatable district assigned to it in common, on which to raise the rice and other produce necessary for its support. For this it pays a land-tax, or rent, adjusted in the following manner. The produce is divided into five equal parts, one of which is supposed to pay the cost of cultivation and reaping, the remainder is equally divided between the tenants and the Government. Instead, however, of receiving the two-fifths in produce, the Government usually commute it for a money payment. Rice land is taken as the general standard; a measure of land called a bouw, equal to $1\frac{3}{4}$ English acres, is supposed to produce five amats of paddy, or rice in the ear, each amat containing one hundred bundles. Each amat yields ten piculs of paddy, or five piculs of bras or white rice cleaned and husked ready for cooking. The amat of bras is considered to be worth six copper rupees on an average, therefore the rent or land-tax for a bouw is twelve copper rupees.* In case of a bad crop a reduction is generally made till the rent is brought down to the

* This would be nearly 14*s.* English money, which would make about 10*s.* 6*d.* per English acre.

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regular proportion of two-fifths of the produce. In addition to this, every community is compelled, when directed by Government, to clear a certain quantity of land, and to plant and cultivate coffee, sugar-cane, tobacco, or whatever may be directed, and to deliver the produce to Government, at a certain fixed rate of payment, which is in fact the wages of the labour. At every pasar also, or market-place, tolls are demanded from all sellers of any kind of article, whether they occupy a stall or not, and these tolls are farmed almost universally by Chinese, who are very oppressive and extortionate in their exaction. Similar tolls are collected in the same way at piers in the harbours of the coast, but I did not hear that they were taken on any roads or bridges, or at the entrances of towns.

The above are the direct taxes in money or produce, but the people have also to provide labour, and the use of horses and carts, and victuals for Government travellers. Each kampong, or community, in proportion to its population, provides so many coolies, and so many horses, &c. at the different wissel-posts on the public roads. If these are required in the direct service of Government, or for the use of a Government officer travelling on duty, no payment is made, but if for the use of persons travelling by permission of Government, on their own concerns, there are certain fixed rates of payment. Every traveller, moreover, in places where there are no hotels, must be supplied with food by

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the districts he passes through, as we found in our own case. The Regent, or Widono of the district, commonly provides plate, glass, and table furniture, &c. as also tea or other foreign luxuries, but the different villages under his rule supply fowls, rice, eggs, meat, and vegetables, and all other things produced in the country; each kampong being made to contribute certain articles, according to its population. The indirect taxes, or duties, are numerous, and for most articles very heavy, especially on all foreign imports. Opium is taxed to an immense amount, the duty being always farmed by Chinese, and being put up to auction every three years. The most pernicious tax is that on salt. This article is made on the north coast of the island and on Madura, and in the interior of the country is very expensive, although highly prized. We always found on our journey a greater difficulty in getting a pinch or two of dirty brown-looking salt than anything else we required, and even at the houses of Europeans of some rank in Sourabaya it was very sparingly supplied at table.

The Javanese are all Mahometans, but by no means strict ones, the mosques are in general only to be known from the natives' houses by having a roof with a double gable at each end. The priest can generally just manage to read the Koran, but that is often the whole amount of his knowledge of his religion; and I was told that they were by no means the most honest, or best part of the population. They are paid by general voluntary contribu-

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tions, collected on the day of the Javanese new year, and by fees on marriages and divorces, which are commonly from one and a half rupees to three rupees each. It appears that divorce is almost as frequent as marriage; divorce by mutual consent is perfectly easy, as also is the divorce of a wife by the husband, but for a woman to divorce her husband against his will it is requisite she should assign some adequate reason.

I did not hear that the Dutch had used any endeavours for the conversion of the Javanese to Christianity, or for their education in other matters, at all events no widely-spread, or earnestly enforced system had ever been adopted for such purposes. Their policy seems to have been simply to put their own Government in the place of the native one, as far as regards the receipt of the revenue, leaving the natives as much as possible in their original condition, to enjoy their own manners and customs, to be governed by their own chiefs in almost the same despotic manner as formerly, but under the superintendence of the Hollanders, in order that the productions and consequent revenues of the island might be increased as much as possible.

The native population of Java was stated by the last census to have amounted to nearly nine millions. In this case it has doubled since 1815, when under Sir S. Raffles, it was found to be 4,615,270, including Madura. It must be observed that the natives have always a direct interest in keeping the census

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as low as possible, because much of the forced labour is imposed on each kampong in proportion to its population.

The Europeans resident in Java are under as despotic a rule as are the natives. By an edict issued in 1834, no foreigner can be allowed to reside, except at Batavia, nor can stay there more than a year, except by permission given by the King of Holland, on petition supported by the approval of the Governor.* No person, not even when permitted to reside, can become a "burgher of the island," or acquire rights of citizenship in it, until after a residence of ten years. The Governor has it in his power to banish any troublesome subject from the island, without the intervention of a court of justice. All European, or white residents of whatever nation, and also all Malays, are obliged to serve a stated time in the militia, or schuyterei, and from April to September must turn out once or twice a week to drill. Europeans above forty-five, or exempt on account of some trifling illness, are obliged to attend the fire department. So also are all Chinese.†

* So jealous is the Dutch Government of Java, and so desirous of secrecy and seclusion, that they will not allow of the appointment even of consuls, or any other similar authorities belonging to any nation, not even at their principal ports of Batavia and Sourabaya.

† The Arabs, from some reason, (probably from their being the religious instructors of the Javanese, and therefore not entirely trustworthy,) are exempt both from the duties of the militia and fire department.

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No one can travel without a passport, on which is stated where he is going, and by what route, and this must be regularly visèd and countersigned by the authorities of every place he passes through. If he should come to any place out of his own district, even with full permission, and reside there more than six weeks, he is sent for by the Assistant-resident, or other Government officer, to know what is the object of his stay, and why he does not return, and is ordered to return to his own residence by the first opportunity, unless he can give very satisfactory reasons for his remaining where he is. I learnt this fact by an instance which came under my own knowledge in Sourabaya.

There are European courts of justice at Batavia, Samārang, and Sourabaya, before which all cases against or between Europeans are tried. Each of these courts is composed of a president, four members, including the circuit judge, a griffier, or secretary, and a fiscal, or public prosecutor. There is no jury, but the prisoners are allowed counsel.

Appeal lies from this court also in all cases above a certain amount to the High Court at Batavia, whose decision is final. All severe punishments for heavy misdemeanors, whether decreed by native or European courts, must be referred to the High Court for approval. This court has the right of mitigating, but not increasing these punishments.

There is also an institution called the Orphan Chamber. This body takes charge of all bankrupt and intestate estates, both native and European.

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The Chinese are allowed to enjoy their own laws with regard to marriage and succession to property.

No European, or native, can acquire any private property in land, nor is there such a thing as private landed property, except in the case of an estate formerly belonging to Sir Charles Forbes, and a few smaller properties, which were acquired under the English rule, between 1812 and 1816, and which have not been resumed. Permission to travel into the country is rarely granted, and to enter the native dominions an order from the Governor in council is necessary. Some of the officers of the Dutch navy, whom we met at Sourabaya, complained of the difficulty they found in getting permission to make even such an excursion as we had done.

The most arbitrary and unjust edicts are sometimes issued by the general government, as for instance, that by which the Bank of Java was rendered no longer liable to be compelled by law to pay in coin its own promissory notes. All freedom of the press is strictly prohibited. There is a Government gazette published at Sourabaya, but besides the Government edicts, it is only allowed to insert advertisements. The newspaper published at Batavia inserts articles of general news, but no political remarks. They have a small scientific society in Batavia, but in Sourabaya there is nothing of the kind, nor any public library, or reading-room, unless the few magazines taken at the club called the Concordia constitute such.

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There are schools for Europeans, which I believe are supported by Government and a few clergymen, at the principal places.

Domestic slavery still exists, although the slave-trade is strictly prohibited, and all slaves are obliged to be registered. The slaves now possessed are either those formerly procured, or their children. Their number, however, is small, and rapidly diminishing, as independent of those manumitted during the life of the owner, it is a frequent practice for him to leave them all free by will after his death. If he dies solvent, this immediately takes effect, if insolvent, however, the slaves remain in the power of his creditors, and can be sold for their benefit. All children born slaves still remain so till manumitted.

Subordination among Government officers seems very strictly kept up, whether they are civil or military, and the discipline of the troops seemed very severe, corporal punishment being frequently inflicted, and in one case, death, while we were at Sourabaya.

All political discussion seems strictly avoided in society, and although I am not aware of the existence of a paid secret police, or indeed of any European police, there seemed to be a general dislike to speak of the internal government of the country. Anything resembling a European society is confined to the principal places on the north coast, everywhere in the interior the Europeans are found merely as

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isolated Government officers, each confined to his allotted station, and each employed in constantly reporting to Government the actions of others. Such a state can be anything but favourable for the persons placed in it, and truth compels me to add, that I was creditably informed that its results were such as might be expected; that with some high and honourable exceptions, the whole frame of Government, from the lowest to the highest, was based on a system of espionage, and mingled with all the arts of petty intrigue and corruption. I was told that men who, under one administration had been degraded and *declared infamous*, had, by a turn of the wheel, been again admitted, and raised to high and responsible offices. I was informed that even the late manager of the branch bank in Sourabaya, although convicted of peculation and fraud, and sentenced to imprisonment for several years, was still visited in gaol by former equals and associates, and was living there in luxury on the fruits of his knavery, and that when freed from imprisonment he would probably be again admitted into society. High honour and strict faith can be by no means an invariable characteristic of the Government itself, if the commonly received and publicly reported account be true, that the last war was brought to a conclusion in 1830, by an act of gross treachery on the part of the Dutch Commander-in-Chief, acting under government orders. He, under pretence of a conference, and after safe-conduct given, got posses-

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sion of the person of the principal native chief, and treacherously kept him prisoner until he was banished to Amboyna.

This and similar occurrences were said to have much shaken the faith of the Javanese in the word of their rulers, and I was told that both natives and Chinese would trust an European of any other nation with much more readiness, and to a far greater amount, than they would a Hollander.

Some improvement, I was glad to learn, was now beginning to manifest itself in the general character of the persons concerned in the government of Java, but much of the old leaven was said to remain, and it was ascribed to the following defects in their system.—The controlloorship and subordinate offices are much underpaid, so that men of high caste of talent and character cannot be expected to take them, even with the prospect of promotion. In all offices, even the highest, the emoluments are not confined to direct salary or wages, but often in greater part arise from per centages on produce raised in the district, and by other indirect means; affording facilities for and offering temptations to fraud, or at least occupying the mind of the officer with endeavours to increase his own profits rather than perform the duties of his station without fear, favour, or affection. The secresy of all transactions, or at least their want of publicity, and the system of reporting all occurrences to superior authority, affords scope for, and gives a tendency to intrigue and artifice, and

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lowers the tone of public and private morality and self-respect.

That these baneful influences should, in many cases, produce their natural results, is but to be expected; at the same time I must say that, without being informed of their existence, I should not have been aware of them, and that all the Government officers with whom we came in personal contact, had every mark of being honourable and gentlemanly men; nor did we ever hear a whisper to their disparagement. It is probably in the more remote and isolated districts that the system produces its full effects.

As I have before said, the raising a revenue seems to be the principal object of the Dutch government of Java. This revenue now amounts to the large total sum of fifty-five millions of guilders (4,750,000*l.*), of which, after deducting the whole of the expenses, there remains a clear surplus revenue of twenty-five millions of guilders, or about 2,084,000*l.*, which is yearly transmitted to the credit of the Home Government.

They seem latterly to have become aware that it is cheaper to raise a revenue by a certain amount of good government than by military force, and they have therefore attended in a greater degree than formerly to the dispensation of justice among the people, and to their physical well doing. They abstain from pushing their exactions to an intolerable degree, they forbear obtruding themselves on the people personally,

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as gatherers of taxes or imposers of labour, but employ the native chiefs for that purpose. To the principal of these they pay large salaries,* and allow considerable state, and much apparent power over their dependants and retainers. To guard, however, against any future outbreak, similar to that of 1826, which was with difficulty finally subdued in 1830, they have erected a chain of strong fortresses from Batavia through the heart of the country to Sourabaya. These fortresses are about forty or fifty miles apart, of considerable extent, and have been constructed with all the strength and refinement of modern military art. How far they might be successfully assailable by foreign invaders, I do not know, but certainly if they resemble the citadel of Sourabaya they are perfectly impregnable to the native population.

Whether such erections may be necessary for the future security of the Dutch Government in Java, I forbear to inquire, but no one, I think, who has visited the island, and seen anything of the natives, and who has read Crawfurd's and Raffles's books, would doubt that such fortresses would be quite unnecessary for a Government who really had the welfare of the people at heart, and sincerely endeavoured to conciliate and benefit them. Among so docile, amiable, and intelligent a people as the Javanese, gradual conversion to Christianity,

* The salary of the Regent of Grisek, for instance, not one of the principal places, is £1200 per annum.

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and to habits of industry and frugality, and the diffusion of considerable intellectual advancement, would be an easy task to a Government who really wished to adopt proper measures for such a result.

The complaint now among all Europeans is that the Javanese peasantry will not work for wages, but only at the command of their native superiors. They say that if a man had a private estate, he could by no temptation of high wages procure any private workmen to cultivate it for him; that the Javanese obeys the orders of his chief and his officers at once, with the utmost alacrity, and whether he receive any remuneration for it or not, but that without such order no inducement is sufficient to make him break through his natural indolence and love of ease. Under the present system this is no doubt true; the Javanese has for ages been trained in habits of implicit obedience to his feudal superior; all his ideas, language, and daily actions, are modelled and adapted to such a system; and no doubt the notion of independent action, independent existence, independent property and personal rights are as strange and unknown to his mind, as is the idea of colour to a blind man. Open the eyes of the blind man, however, emancipate the Javanese from their feudal* servitude, and wait for the result.

* I use the term "feudal" here as expressing the dependence of each man on a superior, and do not mean that a real feudal system, such as existed in Europe, is to be found in Java.

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I would not advocate violent or sudden changes, except in principles of government: alterations in the details and matters of practice may be introduced as slowly as is thought advisable, but what would have been the condition of Java now had it continued under English rule, with Sir S. Raffles, or such men as he, or even inferior men acting on his principles, as governors?

I have already, at page 4, mentioned the peculiar system of sugar cultivation adopted in Java, but having received the following detailed notice respecting it from a gentleman well acquainted with the eastern part of the island, I submit it for the information of those who may be interested in the subject.

In the Sourabaya Residency the different sugar mills that have contracts with Government have from 100 to 175 junks each.

A junk contains . .	4 bouws
A bouw . .	500 square roods
A rood . . .	12 Rhynland feet
A Rhynland foot . .	1.03 English feet.

Therefore one bouw is rather more than 1¾ English acres.*

The Government plant and take care of the canes; they commence planting generally in the month of July, and finish by the 15th September. The canes in this Residency are planted at 3 × 1½ feet apart, but in Passarouan and Probolingo at 3 × 2. In Sourabaya one cane-shoot only is planted, in Passarouan and Probolingo they plant two transversely.

In the month of May the canes are taxed as first, second, and third sorts.

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* Accurately, 1 bouw = 1.754 English acres.

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The first sort calculated to produce 25 piculs * sugar per bouw; the second, 20; the third, 15.

The tax is 3½ copper rupees per picul, thus calculated. If the sugar fabricant cannot agree with the Government servant appointed to tax the canes, the matter is settled by arbitration. A bouw of good cane ought to give 8000 to 9000 bundles of 25 canes each, and about 30 piculs of sugar; very superior canes have given 35 to 40 piculs per bouw, and by using the vacuum process in the fabrication even 50 piculs have been obtained.

Good canes are generally about eight or nine feet long, containing more saccharine matter than canes of a greater length. There are now only two kinds of cane planted in Java; 1st, the white cane; 2nd, the Japara cane. The former is generally planted in light, the latter in heavy soils; the latter flowers when ripe, but not the former. Otaheite cane was tried, but found not to answer. The canes are planted generally at a distance of not more than three miles from the mill, but there are instances in which the canes are eight miles distant. This is only where the population is thin, or the ground in the vicinity poor. In most contracts the Government undertakes not to plant at a greater distance than three miles.

In Sourabaya they plant canes one year, and rice the next, every year alternately. In Passarouan and Probolingo, however, they plant one year canes and two years rice, the ground not being so much impoverished by the latter mode as by the former. Rattooning canes has been altogether abandoned, not only because the soil was impoverished by that process, but because the quantity of sugar obtained from rattooned canes was proved to be less than that from new shoots.

In the Residencies of Passarouan and Probolingo the canes are planted a month earlier than in that of Sourabaya. This arises from the lands of Sourabaya being overflowed by the rivers, which prevents the early planting of the rice crop, and consequently retards its harvest, so that the paddy fields are not cleared so early as in the two other Residencies.

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* One picul = 136lbs. English.

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The canes must be cut and transported from the fields at the expense of the contractor, half a doit per bundle being paid by him for cutting the canes and forming them into bundles. The coolies, or workpeople, are supplied (*i. e.* compelled to work) by the Government. For transporting the canes from the field to the mill the sugar fabricant generally makes contracts with cartmen at the beginning of the year, paying them from 1¼ to 2 doits* per bundle, according to distance.

Coolies are supplied by Government both for cutting the canes and for the work in the mill: this is not obligatory on them by contract, but from the natural indolence of the Javanese great difficulty would be experienced in procuring work-people without the assistance of the Government.† Fifteen doits (2½*d* English) is paid a daily labourer by fabricants who have old contracts, 20 doits by those of later date. Daily coolies are obliged to work from six o'clock in the morning to six in the evening. For night-work they generally receive double wages.

Mills have generally two sets of cylinders, and if well supplied with water (which is the only motive power used in Java), and with good method and management will take off 7000 or 8000 bundles of canes in the twenty-four hours.

Besides contracting for his carting, the fabricant makes advances and closes contracts in January for baskets, pots, &c.

In all the contracts with Government, advances are made to the fabricant in January, and a further advance in June, and after the whole crop has been delivered a final settlement takes place.

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* The doits mentioned in all agricultural transactions are copper doits of 120 to the silver guilder, which is valued at 20 pence English. Therefore a doit = $\frac{1}{6}$th of a penny sterling.

† The meaning of this is that the people are compelled to work by their rulers, native and Dutch, and to receive such wages as they may choose to order them. If not a system of slavery it is one of the most complete serfdom.—J. B. J.

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The fabricant is obliged to deliver *all* the sugar he makes to the Government; and pay at the rate of 3½ rupees per picul for *all* that he delivers, as a tax or payment for the canes.

If however, he deliver less than the quantity, which his canes were taxed as capable of producing, he has not only still to pay 3½ rupees upon the whole of that quantity, but a heavy fine besides.

Government pay him according to agreement in the contract, and according to quality, for his sugar. The rates in the last contracts closed were

12	copper rupees for	"superior white"	called No. 18.
10	"	"grey"	No. 16.
8	"	"brown"	No. 12.
6	"	for a lower quality.	

After the canes pass through the cylinders, the "trash" is carried off and used for fuel. The flues of a mill must be badly constructed, when, besides the trash, firewood is also commonly required for "cooking" the sugar. The system of cooking in vacuo, has hitherto been rarely adopted, sugar being still generally cooked on the old Chinese principle, in open pans. After the sugar is boiled to a certain consistency, it is poured into pots, containing 60 catties, and allowed to granulate for 5 or 6 days. It is then clayed:—this is performed in different ways, every fabricant following his own ideas. It is then turned out of the pots, on to the drying places, and after a few days exposure to the sun, which is generally sufficient, it is packed, and sent to the different sea-ports, to be delivered into the government stores.

The molasses which runs from the pots on claying the sugar, is boiled in a separate set of pans, and the sugar derived from it is mixed with the cane sugar.

A fabricant can never calculate exactly as to what the sugar he makes will cost him, as much depends on the quality of the cane and other circumstances. If for instance, while grinding, there should be much rain, he will have much trouble and expense in drying the sugar, the canes will be very watery, and the "trash"

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not being sufficient to evaporate the water from the juice on boiling, he will have to use firewood which is very expensive.

Still on an average, the expense or cost of sugar to the fabricant may be estimated as follows.

	Copper rup.
Tax paid for planting the canes, per picul	3.50
Expense of cutting, transporting, fabrication, packing, and delivering in Government stores	3.75
Copper	7.25

Now 7.25 copper rupees are 6.04 silver guilders, and as a picul is equal to 136 pounds English, the cost of the sugar per cwt. will be 4.98 guilders or 8*s*. 3$\frac{3}{4}$*d*. sterling. This does not include interest of money on the cost of the establishment, but to cover that 1 per cent will be an ample allowance.

The present Governor finding that the doits were not of proper standard weight, has called them all in, and re-issued them at 160 doits to the silver guilder, or guilder recepissen.* Of course in settlements with fabricants, they are paid at this rate, therefore if a fabricant has to receive 1200 copper rupees, he is paid either 1600 doits, or 1000 recepissen, as he chooses.

Neither sugar-cane nor any other produce can now be much increased in Java: the population being fully employed, and production of any kind can only be augmented in the same ratio, with the increase of population. The great increase of late years in the production of sugar and indigo, may be attributed to the cultivation of these articles being found more profitable than that of rice. Hence the rice-fields have been used for the planting of sugar and indigo, until the present crop of rice is barely sufficient to supply the native consumption. It must not however be lost sight of, that the mode of planting and more especially the working of the ground is much better understood

* These guilder recepissen are a new paper money issued by the Government, not by the bank of Java.

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and attended to now than formerly. The per centage allowed to European civil servants, and native chiefs, has done a wonderful deal of good in that respect. In most instances, the same measurement of land produces one-third more sugar than it did ten years ago. The great secret is ploughing the ground well, which being done, with a rich alluvial soil like that of Java, no manure whatever is required, beyond that of the ashes derived from burning the stubble on the ground. As canes are now never rattooned, they are invariably pulled up by the roots, which are merely cleaned with a knife.

The cultivation of sugar and coffee are perfectly independent of one another, as coffee cannot be planted to any advantage much below 1200 feet above the sea, and at that height the temperature and moisture are against the growth of the sugar-cane. Sugar and indigo are planted on the same description of ground, and as the cultivation of one at any time is decreased, that of the other may be increased.

TABLE OF WEIGHTS.

100 catties	.	=	1 picul.
1 Java picul	.	=	125 lbs. Dutch.
125 lbs. Dutch	.	=	136 lbs. English nearly.
30 piculs	.	=	one Sourabaya coyang.
28 —	.	=	— Samārang do.
27 —	.	=	— Batavia do.

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CHAPTER VII.

LEAVE JAVA—PASS THE STRAIT OF BALI—UNABLE TO STEM THE CURRENT IN THE STRAIT OF LOMBOCK — DIRTY WEATHER — ENTER ALASS STRAIT — DRIFTED BY THE CURRENT—LAND AT SEGAR—BOUNDARY OF TWO DESCRIPTIONS OF COUNTRY—RETURN TO ALASS STRAIT—LAND AT PEJAR—PROCURE REFRESHMENTS—CIVIL TREATMENT OF THE PEOPLE—INFORMATION CONCERNING THE SASSACKS—DUTCH EXPEDITION AGAINST BALI—FRIENDLY TREATMENT OF OUR BOAT'S CREW AT LABOAJEE—SEE MOUNT TUMBORO—BEAUTIFUL VIEW OF LOMBOCK PEAK.

We came out of the strait of Madura on the morning of *January* 12th, 1845, after having stuck in the mud for about an hour, till the tide rose high enough to carry us out. We then dismissed the pilot, and intended to pass into the Indian Ocean through the strait of Bali. In the afternoon it came on to blow hard, with rain, thunder, lightning, and thick weather, so that we were driven past Bali strait during the night, without being able to enter or discern it.

We then tried the strait of Lombock, the next opening towards the east, which we entered with a fresh breeze at 1 P.M. on January 13th. We rounded the eastern end of the island of Bali pretty closely, and could then see the foot and lower slopes

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of the peak or mountain of Carang Assam, which seemed partially cultivated, having irrigated rice-fields and cottages upon it, and the woods and scenery reminded us of the interior of Java. About 4 P.M. we were in the centre of the strait, with the island of Banditti a few miles a-head, when the wind died away, and the current began to set us back to the north.

Jan. 14.—It was quite calm this morning, and we were rapidly drifted to the north by the current, so that, in spite of some light variable airs which sprung up and enabled us to steer southwards, we were fairly set out of the strait to the northwards, and at 3 P.M. getting a westerly breeze, we ran on for Alass strait. The weather again came on thick and squally at night.

Jan. 15. — Blowing hard from the north-west, with rain and thick weather, so that we could see no land, although the mountains of Lombock were only a few miles to the southward of us. We accordingly passed the entrance of Alass strait without perceiving it, and at nine o'clock suddenly made the Timor Yung Islands, on the Sumbawa shore, right a-head and close to. The ship was brought to the wind, and we stood off N.E.; but on that tack we could not weather another islet, called Flat Island, so that we were obliged to spend the afternoon and night in beating to windward, to get an offing, with squally, dark, and uncertain weather.

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Jan. 16.—The same weather continued, but we fetched into the mouth of Alass strait, about four miles to windward of the Timor Yung Islands, and ran up along them. As soon as we had fairly entered the strait, the weather improved very much, but at the same time the wind fell and it was soon nearly calm. It was then a really curious sight to observe the ship drifting to the northward with the current, or exactly contrary to her apparent course. A gentle breeze still kept our sails occasionally full and gave us steerage way through the water, so that with our head to the southward, we appeared to be slowly moving in that direction. On looking at the low Timor Yung Islands on our port hand, however, and comparing them with the high land of Sumbawa beyond, the retrograde motion of the ship was found to be so rapid as to produce the most singular effect. It looked exactly as if the islands were drifting rapidly past us, and as the stern movement of the ship through the air caused the sails to be still further bellied out, as if a pretty fair breeze was blowing, the aspect of things, as we looked from the sails to the land and the apparently still water alongside, was not a little bewildering. I could easily believe an ignorant and superstitious person would have set the whole down to enchantment.

All the boats were now lowered to tow us towards the western side of the strait, where the current is much weaker, but they had hardly commenced

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before a sudden squall urged the ship ahead, obliging the boats hastily to cast off, and in doing this the dingy was capsized. No harm, however, occurred, except the loss of an oar or two; but just as the last man was picked up out of the water, a large shark rose alongside the boats. Having hove to and secured our boats again, we were now enabled to stand over from the Sumbawa shore to that of Lombock, and at seven o'clock shortened sail and came to an anchor in seven fathoms, about a mile from the shore, and nearly two south of a place called in the charts Segar. Here we found the tide setting to the southward at the rate of about a mile per hour, whereas on the eastern side of the strait, and over the whole of the strait of Lombock, a constant current set to the northward at the rate of four or five miles per hour.

Jan. 17.—This morning it was fine and calm. Captain Blackwood wishing to land to get sights for the chronometers, I accompanied him and Mr. Walsh in the first gig. Nearly opposite to the ship was a low, rocky, but green hill rising out of the woods, with some kind of building on its summit. We attempted to land on the beach a little north of this, notwithstanding the surf, but just as we touched the shore a higher wave than usual rolled in and half filled the boat, and nearly swamped and carried her off. Mr. Walsh with the chronometer, and I with my gun, got ashore without our respective burdens getting wet; and Freathy, the coxswain,

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was left in the surf when all hands had succeeded in righting and shoving off the boat; so we three walked along the beach, while Captain Blackwood went on in the gig to look for an opening, which was vaguely marked in the chart, leading into a lagoon to the northward. In about half a mile we reached this lagoon, and found it a large circular basin one or two miles wide, with a very considerable village or town at its upper extremity, and six or eight large prahus, one apparently of 100 tons burthen at least, and several smaller craft, at anchor. This lagoon is separated from the sea by a low neck of woody land, at one point not more than fifty yards wide, and is accessible by a narrow channel not more than 100 yards across. Several reefs and shoals lie off the mouth of this channel to the northward, but we several times got a cast of five fathoms among them, and the same depth was found in the narrowest part of the entrance to the lagoon, so that it is probable a winding channel of that depth might be found leading from the sea into the lagoon. The flat land between the lagoon and the sea, after being contracted to fifty yards, opened to a third of a mile in width, and contained some fields and cocoa-nut plantations, and a cottage or two. As we walked along it a beautiful deer started out of a bush, and though my gun was not loaded with ball, I could not resist the temptation of firing at it, but did not bring it down. At the report of the gun a herd of about twenty came trotting out of a thicket hard by.

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They were of a very good size and beautiful appearance, and I regretted I had not known of their being there before I fired, when we might have occupied the narrow neck of land with the boat's crew, and had some excellent sport.

As soon as we had joined Captain Blackwood, whom we found at the entrance of the lagoon, and he had finished his observations, we set off in chase, but though we saw six we did not succeed in getting within reach of one. We then crossed the entrance to two or three houses on the opposite side, where we bought some cocoa-nuts. These houses were raised about five feet above the ground, upon strong posts, and were accessible by steps to a door in front. They seemed to consist of one long room, with a common passage down one side next the wall, the remainder being divided into compartments or stalls as it were, by bamboo screens. The houses were full of women and children, but as they did not seem willing for us to enter, we did not press it. The men were busy, some in building a boat, others in preparing chunam, and others in pounding rice. They said they were Bugis, and that the name of the place was Rajah Bali, or else Lombock, that the names of the country and of that place were the same, and that the chief of the district was a Bugis. They were anxious to sell us fowls and other refreshments, and behaved very civilly. One man asked who we were and where we came from, and on our telling him, he immediately pointed to his prahu,

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and said he was lately from Sourabaya, and asked where the schooner was, meaning the Bramble. About a hundred yards farther on, we saw several men digging, and on going up to them found they were filling up a grave. They did not seem at all serious about it, laughing and chatting among themselves, and cheerfully informed us a man was dead. They were a bold and sturdy-looking race of men, like most of the Bugis I have seen, with frank and independent manners. These people are now the most enterprising race of the Archipelago, the best and most extensive navigators, traversing in their prahus all the seas from Sumatra to New Guinea, and even to the gulf of Carpentaria. Although in some cases addicted to piracy, they are, from all I have heard of them, the best race for Europeans to engage as sailors, or as settlers in any new colony, or for similar services. Courage and hardihood are the qualities most wanted by the Malay races in general, and wherever they exist, however irregularly they may have been exercised, the people will be found to be ultimately the most valuable, whether as subjects, as servants, or companions.

Crawfurd, in his account of the Eastern Archipelago, makes the Strait of Alass the boundary of the principal of those races, into which he subdivides the Malay nations, that, namely, which inhabits Sumatra, Java, Bali, and Lombock. We were now aware that it is also the boundary of a

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peculiar kind of configuration of country. Java, Bali, and Lombock consist of sloping plains, from which rise single detached conical mountains, or groups of such mountains more or less thickly clustered. The sea shore of these islands is almost invariably low and flat. Sumbawa, on the contrary, rises into broad rugged hills, directly from the sea, and seems to consist principally of high land, traversed by narrow valleys and ravines, and similar features characterised Sandalwood Island and Timor and the other islands we had seen to the eastward. How little, however, is really known of all these magnificent islands, and how much better do they deserve exploration than many parts of the earth that receive it.

In *June*, 1845, we again visited Alass strait, on our way from Port Essington to Singapore, with the wrecked crews and passengers of the Hyderabad and Coringa packet. On this occasion we entered the southern end of Alass strait at night, and anchored on the Lombock shore, near a bight where there is a place called in the chart Pejar. At daylight the next morning we saw a ship at anchor a few miles to the northward, where we concluded Bali Labŏăjee to be situated, and some prahus in the bight to the southward, which we concluded was Pejar. Two boats were manned, and one sent to each place for the purpose of procuring refreshments, of which both ourselves and passengers were greatly in need. Messrs. Ince, Evans, Bell,

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and M'Grath went to Labŏăjee; Captain Blackwood, accompanied by Mr. Macgillivray and myself, to Pejar. We were honoured also by the company of the three Misses Betts and Lieut. Bloomfield, the former of whom were wrecked with their mother and brother in the Hyderabad, and the latter in the Coringa packet. We had heard of an Englishman residing somewhere on Lombock, but whereabouts we did not know. The coast-line here seemed to be a straight beach of black sand, on which a surf was rolling, and occasionally breaking heavily against detached crags of dark rock. On nearing one of the prahus in the little bay we inquired whether an Englishman lived near, to which they answered in the affirmative, and pointed to a small whitewashed house and a flag-staff at the back of the beach. Near this we found a small creek, in which were many canoes, and proceeding up this we landed with great facility in front of the house. We found awaiting us an English gentleman of the name of Hurder. He was an agent of Mr. King's, the English merchant who lives at Ampănan the capital of the island, which is situated on its western side, on the shore of Lombock strait. He received us hospitably, although his house was only a temporary habitation, used principally as a store. He immediately despatched messengers to collect fowls, ducks, and what fruits and vegetables could be procured. He said this would require some hours, but that by giving notice overnight, had we been time

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enough, almost any quantity of poultry, buffaloes, fruit, and vegetables, could have been procured in the morning. We walked through the kampong, and were everywhere most kindly received by the people. They seemed especially delighted to see the English ladies, and invited us to their houses. These were all built on posts about six feet high, which were sometimes left open, but at others fenced round, and used either for a fowl-pen, or rice-store. Steps, or a ladder, led up to the front door. The houses were almost entirely constructed of bamboo, and were equally light, strong, and cool. The floor was covered with clean mats, the apartments separated by curtains or screens of split bamboo, and each had a window and shutter. Overhead were racks, in which we saw spears, muskets, and agricultural and fishing implements.

The women were engaged either in weaving or making pastry, and they were all neat, clean, and good-humoured. Macgillivray and I afterwards came, when by ourselves, on a large and commodious house, of which the owners were Bugis. On asking permission to enter, one of the men immediately shewed us up stairs, and introduced us to the females of the family. They were very busy making cakes of rice-flour, sugar, and eggs. They cut them into stars and flower-shaped patterns, and then handed them to an old woman, who was squatting near a small stove, over which she fryed them in a shallow vessel of cocoa-nut oil. They seemed

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pleased by our visit, and especially so by treating them as equals, and addressing them in terms of courtesy and politeness.* We also took the ladies aboard a prahu, which was lying by the beach. We were struck with the exact resemblance of its upper part to their shore habitations. It was, in fact, just like one of their houses, only lower in its proportions, and standing on shorter posts, built on a boat instead of on the ground. A ledge of bamboo outside this, and projecting over the gunwale of the boat, formed the place for the rowers, and a triangular mast forward served for their sail. The boat was strong and well-shaped. This prahu came from Banda.

We found there were three villages hereabouts: one called Pejar, at the head of the creek, which was nearly dry at low water; the one we were at, called Tanjong Luar, or "Outer Point;" and another on the other side of the creek and a little farther up the bay, the name of which I forget, but I think it was Pabahar. The ground around Tanjong Luar was dry, brown, and barren-looking: it seemed to consist entirely of volcanic sand and ashes, with pieces of pumice. All these were said

* Nothing more speedily wins the heart of the people of Malay race, than urbane and courteous treatment, and nothing is more contrary to their own customs and conduct, and more offensive to their feelings, than the brusqueness, or even abuse, with which they are too often treated by Europeans. "Suaviter in modo, fortiter in re," is the very maxim to adopt with them.

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to have fallen some years ago, during a great eruption of a volcano in Sumbawa. This was doubtless the great eruption of Mount Tumboro, in 1815, described by Sir S. Raffles and quoted by Mr. Lyell. There was a scarcity of fresh water, as there had been no rain for two months. This part of the island is evidently too far from the great mountain on its northern side, the grand condenser of the moisture of the south-east trade-wind. Perpetual streams are said to run over the greater part of the island, from the foot of this mountain mass.

From Mr. Hurder I procured the following scraps of information, which I give as I received it, premising that he had only been twelve months resident on the island, and had not visited the interior.

Lombock is inhabited by a people who call themselves Sassacks,* and speak the Sassack language, which differs a good deal from the common Malay. Their number is probably 150 or 200,000.† The Sassacks are Mahomedans. Some years ago they were invaded and conquered by the people of Bali, who are Hindoos in religion. The present ruler of Lombock is a Balinese. There were, a short time ago, two Rajahs of Lombock; there is now only one, who resides at Matāram, near Ampănam. The

* Crawfurd says that Sassack is the true Malay name for Lombock, that it means "a raft," to which the island was supposed to bear a resemblance in form.

† According to other accounts, there are ten times that number, or two millions of people, in Lombock.

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titles of the two ranks of nobility next to the Rajah are, first Goosti; second, Dewar. The head of a village is called "Dayen." In their habits and customs and respect to superiors, the people precisely resemble the Javanese. The Rajah of Lombock is independent.

Some short time ago, the Dutch East India Government sent a commissioner in a man-of-war to Lombock, to persuade the Rajahs (of whom there were then two) to enter into *a commercial treaty*. Chiefly by the advice of Mr. King, the Rajahs declined this offer: they said they wished their trade to be perfectly free to every one; that the Dutch were at liberty to come and trade if they chose, but they should certainly enter into no treaty to exclude the English, the Americans, or other nations. The same commissioner went also to Bali, the Princes of which island were persuaded to enter into the treaty. When, however, they fully understood its nature, that it was intended to bind them to exclusive commerce with the Dutch, they repudiated it, and denied that they had intended any thing of the kind. For this offence the Dutch were now fitting out an armament against Bali, which they intended shortly to attack.*

* I confess I had at the time some doubts as to the correctness of this information, but time has proved it true. It is at all events true that the Dutch have attacked Bali and defeated the natives, and destroyed one of their towns. After reading their published proclamation as to the cause of this war, I could find

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There is a good road across the island of Lombock, from one strait to the other. It can be easily traversed on horseback in two days.

The interior is well cultivated, rice being the principal production. Of this not less than 20,000 tons were expected to be exported from Lombock during the present year (1845). Many Hindoo Balinese were scattered over the island, as not fewer than eight widows were to be burnt in the neighbourhood of Pejar next week.

Deer, wild pigs, and jungle-fowl abound in the island, but there are no tigers. The Dutch Resident at Bima, in the island of Sumbawa, is a native, and the Dutch have no establishment on any of the islands to the eastward of Lombock, till we come to Coupang, in the island of Timor.

The bight or small bay of Pejar has very good anchorage and shelter for shipping, as there is seven fathoms water in a part quite protected from the south-east trade-wind. There are some shoals, however, near the land, which must be looked out for on entering. The landing is as good as can be wished, and the refreshments abundant and cheap, except fresh water, which must be got from Bali Laboajee. We took off with us five dozen ducks, five dozen fowls, and two horse loads of plantains, pumpkins, and

nothing to contradict the belief that the real cause was that previously assigned to me by Mr. Hurder. The most potent published cause was an instance of disrespect to a Dutch officer from some of the Balinese, or some such trifling matter.

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cucumbers, for all which we paid fourteen dollars, or about £3. 17*s*.

Mr. Hurder told us he had known one instance of an 'amok" (running a muck) at Tanjong Luar, his servant having shot a man a few weeks ago, who was rushing to attack him, after wounding one or two others. He did not speak so highly of the people as they appeared to me to deserve, but as he lives here alone, quite unprotected, was in a constant state of hard bargaining with them, and seemed to treat them rather haughtily and with some haste of temper, they cannot be otherwise than a peaceably disposed and honest race, or his life or property would not be safe.

On dropping down to Labŏăjee, we picked up our other boat, the crew of which had been equally well treated, and equally successful with ourselves. The country here was far more fertile and better watered than that around Pejar. The vessel we saw at anchor was an American whaler, completing her water from a stream that ran out over the beach. Her master was very civil to our officers, and allowed them to purchase the provisions that had been collected for himself, as he was going to stay a day or two longer.

On shore they found the head man of the village remarkably attentive to them, and evidently attracted by their gold and silver coin. He spoke a little English, and transacted all their business for them, paying each man in Chinese "cash," for the

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few fowls or other things he brought, and then receiving payment himself for the whole at once. He provided both officers and men with an excellent dinner, and seemed anxious to please them in all respects. At parting, he begged very hard for the boat's ensign, saying he wished much for an English flag to hoist at his own house. This however, of course could not be given him. He sent word that if more things were required, and we would anchor and fire a gun, the beach should next morning be crowded with people, bringing in buffaloes, poultry, and vegetables from the country. The prices fixed were 1 dollar a dozen for fowls, 2 dollars a dozen for ducks, 2 for a bullock, &c. Cloth and muskets would eagerly be taken in exchange, the latter estimated at 5 dollars a piece.

To a man fond of field sports and a wild life, speaking Malay, and quick at catching up other dialects, of a frank and courteous demeanour, and capable of adapting himself to the habits of the people, what a delightful field for travelling, or for a temporary residence, might be found in these islands. To a botanist or zoologist, their interiors are almost virgin ground, and though their fauna and flora would no doubt greatly resemble those of Java, yet there would be much also peculiar to themselves and new to science. To the geologist they are almost equally attractive in their great tertiary formations, mingled with volcanic phenomena developed on so grand a scale. There would

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be neither difficulty nor danger in the enterprise to such a man as I have mentioned. His way would be first of all, to present himself to the Rajah or chief authority of the country, and propitiate his favour. This would cost him a few showy presents of English arms or cutlery, and a brace of pistols or something of that sort now and then presented to the inferior chiefs. He would then have the whole country open to him, and might live and travel at a very trifling cost. In the case of Lombock Mr. King of Ampănam could at once by his good word pass him through the island.

June 26.—At daylight in the morning, we found ourselves clear of Atlass Strait, with the Peak of Lombock to the south-west of us, its summit 24 miles distant. In the east we could see Mount Tumboro at a much greater distance. It did not seem very lofty, and shewed like a great flat-topped mass without any cone or peak. Several mountains to the southward of it, in the interior of Sumbawa, seemed much loftier. The atmosphere was singularly clear and transparent, and as the sun rose we had a magnificent view of the whole mountain of Lombock Peak. The level beams of the sun tinged all the crags and ridges of the lower mass, bringing out in bright relief all the wrinkles, folds, and corrugations with which its sides were furrowed, and lit up the summit cone with a rich glow, as if it shone by its own light. All the valleys and ravines of the lower mass were clothed with dark woods,

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which mantled also round the base of the cone, and seemed to struggle up it in broken lines, marking the slight hollows in its sides. The upper part of the cone, as well the sharp knife-edged ridges and the peaks and mounds of the lower mass were bare and brown, with here and there a crest of pine-like trees, no doubt the casuarina which we had seen in Java. There were no lava streams visible, either on the sides of the cone or below, they having no doubt long been covered up by dust and ashes, as in the volcanoes of Java.

Mr. Evans measured a base this morning, with the patent log, under very favourable circumstances, and made the height of the mountain, from the mean of four closely agreeing observations 11,400 feet. In the Dutch Batavian Almanack, its height is given as 10,800 Dutch, or 11,134 English feet. It is therefore lower than the Peak of Teneriffe by nearly 1000 feet, but about that much higher than Etna. It exceeds the Peak of Teneriffe in majesty of appearance, when viewed from the north side, as it seems to rise more abruptly from the sea, while on the south side it rises from a comparatively low and level country, and then exceeds Teneriffe in beauty still more than in nobleness of aspect.

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CHAPTER VIII.

ISLANDS OF KANGALANG AND LUBECK—BANCA—SINGAPORE —MALACCA — PLEASANT ASPECT — GOOD CHARACTER OF PEOPLE — TIN MINES — BOUKIT TIMAH—GEOLOGICAL OBSERVATIONS ON MALACCA AND SINGAPORE — STRAIT OF SUNDA — ANJER — GEOLOGICAL SKETCH OF THE INDIAN ARCHIPELAGO—CONCLUDING OBSERVATIONS ON THE CHARACTER AND CAPABILITIES OF THE MALAY NATIONS.

In *June*, 1845, on our way from the Strait of Alass to Singapore, we passed by several small islands. The first of these, Kangalang Island, which we passed on the 27th, had a very fertile and pleasant aspect. It had a range of low hills on the northern side, which ran in an easterly and westerly direction, and appeared similar to the low east and west ranges of the island of Madura. Lubeck, on the contrary, somewhat farther to the northward, seemed to consist of a rough serrated mass of hills rising full 2000 feet above the sea. As we passed through the Strait of Banca, I could distinctly perceive that several of the rocky promontories which rise on the shore of the island of Banca were composed of granite, and I believe that all the abrupt hills rising from that island are of the same rock, with sands and other soft incoherent materials forming the low grounds. It is from the washing of these sands that

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the tin is procured, for which Banca is so famous. The Sumatra shore here is one great flat, bordered by mangrove swamps, and reminded us of the aspect of the shores of New Guinea.

On *July* 5th we anchored at Singapore. The shores of the strait, from Pedra Branca and Point Romania, which are themselves made of granite, are composed of a succession of rocky headlands, all of which seemed to be granite, and flat spaces, apparently formed of sand. A dense jungle of wood covered the whole, forming pleasing, but by no means striking scenery. We passed two large Chinese junks on their way to China. Their grotesqueness, when under sail, is greater even than would be expected, from the common engravings of them: they reminded me of the outrè figures one meets in old books of European shipping, as it existed in the time of the Conquest or the Crusades.

Of Singapore itself, it is almost needless to speak. I was struck with the size, importance, and evident wealth of a place some years younger than myself, and amused with its varied population. Of its 50,000 inhabitants, more than 20,000 are Chinese of the lowest rank; the rest of the population is a motley mixture, the most prominent of which is a race called Chulias, from the coast of Madras. I was surprised at the great difference in aspect between these, who act mostly as messengers and carriage and horse-keepers, and the Sepoy soldiers. The latter were frequently a noble looking set of

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ON THE RIVER SINGAPORE.

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men, and although sometimes quite black, their features would have been considered singularly handsome, even in an European.

We had now only one day to look at Singapore, when we went on to join the Admiral, Sir T. Cochrane, and the Chinese squadron, at Malacca.

Malacca always seemed to me one of those old places that, having a kind of half-fabulous antiquity about them—a name and a glory long since faded—are peculiarly attractive to the imagination. I was delighted at the opportunity of being able to substitute a real image for the shadowy one that had glimmered in my mind ever since, as a boy, I had read of Malacca as the Queen of the East, in the narratives of the older voyagers.

Down the centre of the southern part of the Malay peninsula, there runs, not a continuous range, but a number of detached hills or groups of mountains. These have a bold and striking form, and look like hills of granite. The loftiest is Gonung Leadang, or Mount Ophir, which is said to be about 5000 feet high. Around these, and stretching from them to the coast, is a low and generally level country, here and there broken by small rocky eminences. Just south of Malacca are a few islands, called the Water Islands, which are composed of a very handsome grey granite.

Malacca, like all these tropical towns, makes little show from the sea. A shallow little brook gives access to canoes, and at high water to boats of a

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larger burden. Just south of this is a round eminence, some 200 feet in height, on the top of which are the ruins of the old Portuguese stone church, in front of which is now a signal station and light-house. Round the foot of this hill the ruins of old fortifications may be traced, of which the sally-port yet remains entire, and is picturesquely covered with ivy. On the opposite side of the hill is a more modern erection, the old Dutch Stadthouse, built of brick with gables ornamented by stone, in the quaint but substantial style of the old Dutch architecture. Open spaces of grass shaded by fine old trees, with European houses around them of a respectable size and antiquity, and tolerably spacious cantonments for the Sepoy troops, form the remainder of this part of the town, which is surrounded by several streets and lanes of native houses, inhabited principally by Malays. Crossing the river by a wooden bridge, we found a number of narrow streets lined with workshops and stores, in which are many Malays, but more Chinese, working with their usual industry. A few European houses and stores are also to be found here, and many Chinese houses of the better class, ornamented with all the grotesque carving, painting, and gilding in which that people delight. Good roads lead along shore, both north and south of the town, lined with pleasant country houses, both native and European, and on the north side are the buildings of the college. Groves and avenues of lofty and beautiful trees, and gardens full

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of fruits and flowers, run in every direction along the roads, while the lanes round the outskirts of the town are perfect avenues of cocoa-nut trees and other palms, affording the most grateful shade. Several very fair roads also run in different directions for some distance into the country.

Altogether I was far more pleased with the aspect of Malacca than that of Singapore. Singapore looks like one of our spick and span new colonial towns dropped by some accident into the tropics, where it is totally out of place. The trees have been most injudiciously cleared away, leaving bare white houses and dusty roads gleaming in the sun. Malacca on the contrary, seems to be the natural growth of the country, a native town just sufficiently elevated by the mixture of European character, without losing its own. Its houses seem to have grown up under the trees that shelter them, and its narrow shadowy alleys and green lanes form a most delightful contrast with the glaring streets of Singapore. To a stranger like myself unemployed in business, the very air of indolence and contentment that Malacca wears is far preferable to the stir and bustle of its rival. This character seems fully appreciated by its inhabitants, as on my asking a native boatman one day, which he liked best, he said he had been at Singapore, but did not like it at all; adding in his own language, "everybody was running here, running there, and doing

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something all the day long, and there was too much noise."

I walked two or three miles out of the town, in different directions, mingling as much as possible with the inhabitants. They seemed at first rather shy of strangers, but were won directly by a few kind words. The females seemed to keep themselves more secluded than in Java. The presence of the squadron however, was no doubt in some measure the cause of this, as they complained much of the sailors, who as they told me came ashore and got drunk, and forced themselves into the houses. When alone I was every where received with great kindness and civility.

The rocks of the neighbourhood were red and white clays and sands, the latter passing sometimes into an argillaceous sandstone, that was often highly ferruginous. Some of the eminences consisting of this ferruginous sandstone were strewed with nodular concretions of ironstone. I could see no fossils anywhere. This formation greatly re-resembled that about Port Essington and the north coast of Australia. Some of the more ferruginous hills formed a rocky and barren soil, but that of the flats and lower portion was black, deep and rich looking. Mr. Salmond, the Senior Resident Councillor, told me the soil of the district generally was richer than that of Singapore, and well adapted for the growth of sugar and other tropical produce, on

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a larger scale than has yet been tried. The total population is 58,000, but living is so cheap, that it is difficult to induce the people to labour with sufficient regularity to justify large undertakings. Mr. Salmond said he could rarely get the same man to work in his garden two days together, for one day's wages of 11 cents. or 5½*d.* would keep him from four to six days. Having gained that accordingly, he passes the remainder of his time in cock fighting and other amusements. And why should a man work more than is necessary to support himself comfortably and happily?*

According to the account of the same high authority, whose real office is that of Deputy Governor of the district, no part of the world is freer from crime than the district of Malacca. The native chiefs have been deprived of their feudal authority and reduced to the condition of private gentlemen. There are a few European Magistrates by whom a Court of Session is held occasionally in Malacca, and there is a small body of police. Serious crimes, such as murder or robbery, are almost unknown; a few petty cases of assault, or

* It must be borne in mind, that what is comfort and happiness to the present generation, will probably be looked on by their descendants as squalidness and misery. It requires but a little taste for the luxuries or the elegancies of life, good furniture, or handsome clothing, to induce these people to work regularly for a few hours a day, which is as much as human beings ought to do in tropical countries.

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of disputes about property, are occasionally brought before the court, and are all that occur. The port is perfectly free, there being no customs, tolls, or duties, on either imports or exports, on markets, bridges, roads, or any other thing, except a slight registration tax on horses, carts, and bullocks, to pay the expenses of the police.

The land however is considered to belong to the Government or East India Company, and is held from them on payment of a tax or rent which never exceeds one-tenth of the produce, and which varies according to the nature of the soil. The revenue derived from this did not, Mr. Salmond assured us, pay the expenses of the government.*

He described the tin mines, a few miles up the country, as simple excavations in a few feet of clay and sand. A coarse rubble below this is then washed, and pebbles of tin ore extracted from it. This is smelted once, and brought, principally by water carriage, to Malacca. If designed for the English market, salt water is thrown over it while still hot, which gives it a dead white appearance like silver; if for the French, a little sulphur is added to give it a yellowish coppery tinge. The respective merchants of the two countries will give the best price only for their favourite colours, although the two parcels of tin may perhaps have been taken from the same mass.

* For detailed information, respecting Malacca, I must of course refer my readers to Lieutenant Newbold's work upon it.

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A similar anecdote was told me of a cargo of nutmegs, which being sent home, either from Malacca or Penang, in their husk or rind, had when opened the bright red colour which they always have when fresh. They were declared unsaleable; but after lying for a year or two in a warehouse at home, fetched a high price as a "very superior article."

After remaining a week at Malacca we returned to Singapore, where we stayed for a fortnight. During this time I made one excursion to Boukit Timah, a hill near the north side of the island, and about eight miles from the town. Very good roads have now been made in several directions across the island, and a number of plantations cleared, in which are grown nutmegs, pepper, cloves, gambir, etc. The hill of Boukit Timah, which is about 400 feet high, consisted of granite, but all the remainder of the ground passed over was either clay or sand, or a soft argillaceous sandstone, sometimes ferruginous.* The country was abruptly undulating, with many little winding valleys. The soil did not seem rich, except in the flat bottoms; but the whole country, both hill and dale, where it had not been

* It contained harder beds of sandstone, and in some loose sands and clays I saw blocks of sandstone embedded of large size, and well rounded, as if water-worn boulders. I could not be sure, however, that they were true boulders, and not spheroidal concretions, such as I have seen in the sandstones of New South Wales.

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cleared by the hand of man, was covered by a dense and impenetrable jungle. Trees of vast height and size rose from amongst a profusion of undergrowth, studded with many varieties of palms and groves of tree-ferns. The subjacent rock did not seem of a more tractable description than that of Port Essington, which indeed it much resembled; but how different was the native vegetation! and how much more rich in consequence the vegetable soil!

Another excursion I made was in the Government gun-boat, with Mr. Evans, to survey the Johore shoal, off the south-east point of the island of Singapore. I only succeeded in landing on the mainland of Johore for about half an hour. The rock, and of course the vegetation, was the same as that of Singapore. We visited a small Malay village, of which the Malay inhabitants seemed to be all mat-makers, but there were two Chinese shopkeepers, and a Bugis family was settled on a small island opposite, where they seemed to be cultivating the ground. Entering one of the Malay houses, we found a party of men, women, and children playing at cards. The cards were Chinese, and as well as the game quite unintelligible to me. They played with great good humour, although a considerable number of the small coins they used frequently changed hands; as twelve of these coins, however, go to a penny sterling, the losses could not be very serious.

On *August* 3rd, 1845, we left Singapore, and beat back through the Strait of Banca to that of

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Sunda, where we anchored off the little town of Anjer on August 19th. In passing the southern part of the island of Lingin I saw a group of mountains, in shape resembling those of the Malay peninsula, and apparently 4000 or 5000 feet in height. We stayed a day at Anjer. The interior of Java at this end looked almost as grand and beautiful as that of the part we had before travelled over. The mountains though not so lofty, were much closer on the sea.

We saw here in the evening a marriage procession of the poorer classes, which I will briefly describe, as I forgot to do so when speaking of our stay in Sourabaya. Two men came first beating a kind of drum, then came several men carrying a frame-work that was covered with garlands of flowers, and lighted up with tapers. Next to these came the bride and bridegroom; he was in his gayest clothes, his face, neck, and hands smeared with yellow paste.* The bride was ornamented with chaplets of flowers, and on each side were several bridesmaids similarly ornamented. Behind these walked a troop of girls, each carrying a small lighted taper and screaming at the top of her voice, and then came a crowd of boys and young men, all singing.

I here close my narrative, since an account of

* In the Sandwich islands yellow was the royal colour, none but the king being allowed to wear a cloak altogether yellow. See Ellis's Polynesian Researches, vol. 4, page 157.

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our voyage from the Strait of Sunda to Sydney, and our return thence to England, could have little interest to the reader. Perhaps, however, I may be indulged with a few last general observations on the East Indian Archipelago.

The geological constitution of the Indian Archipelago, so far as it is known, appears to be simple and easily described. If we draw a line from the west coast of the Malay Peninsula down the Strait of Malacca, and thence through that of Banca, take it through the Java sea, and including in its sweep Borneo and Celebes, bring it round again to the east coast of the Malay Peninsula, the countries surrounded by it appear to consist principally of granite, more or less covered by sands and detrital accumulations, derived probably from the wear and tear of the granitic rocks. In these countries valuable minerals abound, more especially tin, antimony, and gold.

A great volcanic band proceeds from the north through the Philippine Islands to the Moluccas. It here joins another that runs from the neighbourhood of Barren Island in the Bay of Bengal, through Sumatra, Java, and the islands to the eastward, along the northern coast of New Guinea, and thence through the Solomon Archipelago, that of Tierra Austral del Espiritu Santo and the New Hebrides, and is thence continued into New Zealand. In part of this great band, namely, from the western extremity of Java into Timor, if not throughout its

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whole extent, thick tertiary calcareous formations rest upon the flanks of the volcanic chasm, and have been elevated along with it. These tertiary formations at the two points where I was able to examine them appeared to me to be raised coral-reefs. These two points were Timor and Java, and the distant aspect of both was precisely alike, and exactly resembled the distant aspect of the rocks at the intermediate points of Lombock, Sumbawa, and Sandalwood Island. If, however, these are all really raised coral-reefs, they do not belong to the class which may be called independent coral-reefs, but are probably "fringing-reefs" only. They are more largely developed than usual on account of the gradual elevation of the land, by which they were enabled to add continually to their lateral extension, without suffering in these calm and sheltered seas much denudation in the parts which were successively protruded through the usually destructive plane of the sea level. The mingled soils of these volcanic and calcareous rocks are some of the richest in the world, and combined with the heat and moisture of the climate produce a vegetation unequalled for its luxuriance, affording the most exquisite fruits, the most varied and abundant vegetable foods, and being the native home of the rarest and most valued spices.

The northern and eastern coasts of Australia, and the island of New Caledonia, seem in their granitic rocks, and the former at least in its more

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superficial accumulations, to resemble the Malayan peninsula, and the countries above associated with it, as Borneo and its neighbourhood. Whether they also contain similar or other metals is yet unknown. The vegetable wealth which exists in the northern granitic islands, though not in such profusion as in those of the volcanic band, is, at all events, not extended to the north coast of Australia.

It seems strange that these regions included in the East Indian Archipelago, one of the most favoured portions of the globe, should have remained even to our day comparatively unknown and uncared for, while so many other parts of the world, less accessible and far less interesting, have been constantly ransacked and described by travellers of all kinds. The grandeur and beauty of the scenery of this great group of islands can hardly be surpassed, while, as we have already observed, the richness of its productions in the animal and mineral kingdoms is great, and in the vegetable kingdom they are unequalled whether in beauty, rarity, or value to man.

Its populous inhabitants, so mild and tractable in their native disposition, so docile to kindness, and so open to instruction, have been left either in their native barbarism, or still worse, have been oppressed by the exactions and exasperated by the injuries of Europeans. Their seas, for the most part so tranquil and easy of navigation, have been left unsurveyed and permitted to swarm with the piratical

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craft of their own uninstructed chieftains, or those of foreign adventurers who have acquired influence among them. Their conversion to Mahomedanism by a few wandering Arabs has been suffered to go on unchecked by the diffusion of the purer and higher tenets of Christianity, while vast sums and great exertions have been expended almost in vain in regions of far less promise and of far greater difficulty. Within the last two years more attention has perhaps been directed to this region, and some interest excited respecting it by the publication of part of Mr. Brooke's Journal in Captain Keppel's narrative of the Voyage of the Dido.* It is not required that I should add my meed of praise to the universal acknowledgment of the energy, enterprise, and humane and lofty views of Mr. Brooke. One thing well worthy of attention will be shewn by the result of his labours, and that is what can be done with these people when well managed, and governed with any regard to the rules of justice and benevolence. In this direction, more particularly, I believe his example will be highly beneficial. Every one, moreover, at all acquainted

* The above observations are mostly copied from my journal written before I had seen this work, or, indeed, had heard of Mr. Brooke's establishment at Sarāwak. I need hardly add that I was delighted to find the opinion I had previously formed of the character and capabilities of the Malay race so much in accordance with that expressed by one who has had such opportunities as that gentleman of forming a correct judgment.

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with the Malay character will agree with me when I declare that it is just from those Malay nations, who are now most dreaded as pirates and robbers, that, under proper treatment, the largest results may be expected in commerce and civilization.

One of the great defects of the Malay character in general, as among the Javanese for instance, is a want of enterprise and hardihood. Where those qualities exist, however they may have been misdirected hitherto, we have far more valuable materials to work upon, than where they are absent. What European nations were of old the greatest pirates and freebooters? Those, our own included, who have afterwards attained the highest pitch of civilization.

Europe has hitherto brought little but ruin and rapine, and commercial restriction, into this, the fairest and most fertile region of the earth. Surely, she owes it a tardy reparation. For any nation wishing to diffuse among these people the blessings of commerce, of enlightenment and civilization, I do not think territorial acquisitions advisable, beyond a few small posts or stations, for its naval and mercantile marine. A strong feeling exists on the part of many of the inhabitants of the Archipelago in favour of England, which our manufacturing and commercial necessities would urge us to foster and take advantage of. Our policy, I believe, would be to keep the seas free from outrage, to make them everywhere safe for all those " passing upon them on their law-

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ful occasions," whether natives or Europeans; to break up the strong-holds of piracy, and eradicate the disposition to it, by rendering its practice unsafe or impossible. Having done that, we may safely trust to the gradual, though slow, operation of commerce, or to individual enterprise and philanthropy for the enlightenment and civilization of the nations of the islands, and look forward to an ultimate reward in the markets that will be opened for our trade and manufactures.

The people are naturally of a commercial turn, capable of considerable advancement in the arts of agriculture, or the collection of produce of all kinds, and the surest way of encouraging the cultivation of the interior of the islands would be to afford the utmost facility for the exportation of their productions.

There is one obstacle in the way, it may be said, namely, the Dutch and their possessions. But why should our old allies, and very good friends at home, be our natural enemies in the East? It is true, I believe, that they are very jealous of us, and perhaps rather bitter against us there; and it is also true, that from a feeling of mutual jealousy, we have hampered each other with a treaty of non-interference, and thus tied up each other's hands. Is it necessary that this should always be so? Surely, we can persuade them to join with us in measures that would be for our mutual advantage. Let the Hollanders adhere to their exclusive system if they

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please, or until they see fit to alter it, in those places in which they already exercise territorial dominion. There is abundance of room for another and mutually co-operative system to be tried without touching on those dominions. Let them join with us in assuming the police of the seas, and encouraging the civilization and commerce of the natives. Let certain places, conveniently situated for posts and stations, either be assigned to each, or held in common, or occupied merely under the native governments. Why, I again ask, should we quarrel when our friendship and co-operation would be so mutually beneficial? The old national prejudices are now fast wearing out of all our hearts, why not look forward to a time when they shall be altogether effaced?*

Whether, however, we act jointly with others, or alone, the time is surely now come when so large, so fair, and so accessible a portion of the earth should no longer be carelessly or ignorantly abandoned to barbarism; when it is almost our duty, if it were not our interest, to spread through it what we can, whether of physical comfort or of moral and intellectual enlightenment. Happy, perhaps, is it

* If it were not trespassing too closely on the confines of party politics, I might speculate here on the effects of a change in the government of Holland. There is no doubt that an enlarged and liberal commercial policy in the East would be an estimable benefit and advantage to the great mass of the people of Holland, although the maintenance of the present exclusive and restrictive system is vitally necessary to the existing monarchical and aristocratical interests of that country.

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for these nations that they have hitherto lived even so far undisturbed as they have, down to an age when it becomes possible for the European to have close intercourse with them, without carrying death and ruin in his train, when with a more humane because a wiser and more far-seeing policy than of old, it is acknowledged that we cannot hope ultimately to benefit and enrich ourselves, unless we act so that our customers and allies be likewise enriched and benefited.

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CHAPTER IX.

ON THE ETHNOLOGY OF THE INDIAN AND PACIFIC OCEANS.

HAVING never made the science of Ethnology my study, I feel some diffidence in attempting to contribute to its stores. My reasons for making that attempt, are, firstly, that very little is known of some of the people that we visited, and secondly, that in what has been published respecting them there seemed to me to be one or two errors, which our observations might enable me to correct. In order to put the subject in a clearer light, I shall endeavour to give a slight sketch of the three principal races of men, that inhabit the islands of the Indian and Pacific Oceans. These three principal races are, 1. *The Malayo-Polynesian.* 2. *The Papuan.* 3. *The Australian.* The first are comparatively well known, and much information has lately been given to the world respecting the last, but of the second, or Papuan race, the published accounts are very meagre and scanty. It is from our ignorance respecting them that one of the errors I speak of has arisen, namely, the confounding them with the Australians, and classing both under one head, that of Melanesians.* My principal object in this chapter

* In the last edition of Dr. Prichard's Researches into the Physical History of Mankind, this error is in great measure

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is to shew that of the three races enumerated above, the third is as different from the second, as the second is from the first. In this investigation, I must request the reader to bear in mind, that in proportion as different races of men approach more nearly to the simple state of the savage, so do the differences between them become less in amount and therefore less obvious to the transient observer, while at the same time these slight differences may be as characteristic and important as much larger variations between more civilized races. In the

obviated. He separates the Australian from the Papuan races, and classes them provisionally with the so-called Alfooras or Harafooras. This last designation however ought at once to be discarded, as I have no doubt Mr. Earl's derivation and explanation of the word as given by Dr. Prichard are correct. There is no one race of men answering to the Harafooras, it is a term that has been used to signify any wild tribe of whom the speaker knew little or nothing.

Dr. Prichard alters the term Melanesian into Kelœnonesian, and no doubt improves its etymology by so doing. It still however appears to me inappropriate, for either under the term Kelœnonesian or Oceanic Blacks you must include the Papuan and Australian races, or confine it to the one when it is just as applicable to the other. Neither do I think the distinction of colour a good one, independently of this consideration, because some of the Polynesian or Malay races, may be and I believe are just as black as the Papuans or Australians. Some of the Madurese we saw were as black as the Torres Strait Islanders for instance. I do not see why, as the term Malay has been extended from the particular nation, and made to include the race, the term Papua should not also be extended from a tribe in the north-west corner of New Guinea to include the whole of that race.

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numberless institutions and observances and complicated relations of civilised life, points of resemblance or discordance between different nations, even of kindred race, become so numerous and so obvious as to be at once remarked. Although the amount of difference thus remarked may not be greater in proportion to the whole mass of human relations in the civilised than the savage state, yet as that mass is much less in the latter than in the former, the proportionate differences between its parts must also be much less, and in the simplest conditions of humanity run a chance of being altogether overlooked.* Differences in laws, customs, and social usages, in respect for rank, in form of government, in the internal spirit or external forms of religion, in agriculture or commerce, or in arts or sciences, must be in vain sought for among people almost entirely destitute of all these things, as for instance the Australians and the Fuegians. Whenever people in so simple a condition are placed under circumstances at all approaching to similarity, it is obvious that more points of resemblance will be perceived between them, than of discordance, and a hasty or superficial observer would be very likely to be led into error in his conclusions respecting them.

* The difference between 1 and 2 is precisely the same *in proportion* with that between 50 and 100, but as the *amount* of the difference is in one case 1, and in the other 50, the former may be much more easily overlooked than the latter.

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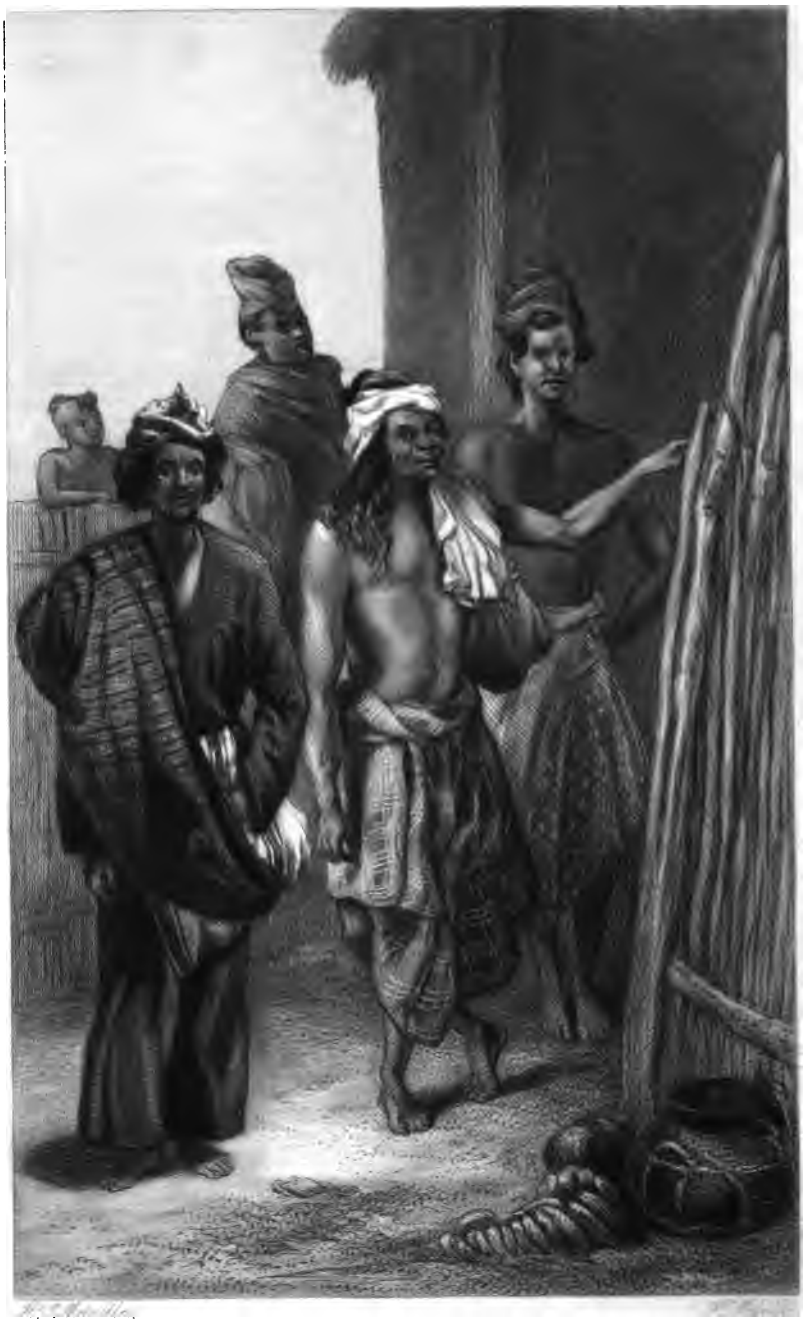

MALAYS.

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Bearing this remark in mind, let us glance over a few of the principal characteristics, physical, intellectual, and moral, of the three races now under discussion.

PHYSICAL CHARACTERISTICS.

Malayo-Polynesian race.—Of this race we saw, during our voyage, the people of Coupang, and of Lombock, Java, and Malacca, and individuals of the Bughis from Celebes and other parts of the Archipelago. There was a great difference of stature and of beauty among them. Some of the principal men in Lombock and Java were tall and portly, with open and intelligent countenances, as were many also of the Bughis, while others among the Malay nations were of mean stature and repulsive appearance. The children and young people of both sexes were often really handsome in face and graceful in figure. Among the adults, whatever was the stature, the figure was usually square-built and athletic, the limbs large, and the shoulders broad. The skin was commonly smooth and almost hairless, and the outline of the limbs was rounder and the muscles less prominent than among Europeans. The face was generally broad and rather flat. The hair of the head was harsh, long, black, and almost invariably straight. The colour of the skin varied from yellow up to an almost negro blackness, but a dark yellowish-brown was the most usual tint.

I believe this description would apply to the

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inhabitants of the rest of the Indian Archipelago peopled by this race, as also to the aborigines of most of the islands of the Pacific.

Papuan race. — Of these people we saw those inhabiting the islands of Torres Strait, and parts of the south-east shores of New Guinea, and a few individuals (slaves in Java) said to come from the western or north-western shores of New Guinea. The generality of these people did not differ very greatly from Europeans in the stature or proportions of their bodies. Their limbs were generally rounder in outline, and less muscular in aspect than would be found among our labouring population at home, and they had not the squareness of build remarkable in the Malay race. Their features were frequently good, compared with the Australians, the forehead broad though not high, the head generally rather square, the nose slightly aquiline, but broad at the base, with open nostrils, the lips rather thick. Their faces not unfrequently reminded us of those of the Jews. The eyes were sufficiently large and well formed, not too deeply set, nor with the overhanging brow of the Australian. The colour of the skin is commonly of a deep reddish brown, but we saw some individuals in New Guinea of a pale frog-like yellow colour. The hair of these people is very peculiar, and at first sight might be confounded with the wool of the negro. Its distribution is most easily seen on the body and limbs, where it may be observed to grow in small

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DOODÈGAB MANOO WARTI DARRAS

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tufts or pencils, separated one from the other, giving a blotchy or woolly aspect to the skin. The hair of the head doubtless grows in the same way, but here the tufts are close together, and each forms a separate small curl, very stiff, and when suffered to grow long, hangs down in a narrow pipe-like ringlet. These curls resemble those of a thrum mop. The fashion of dressing the hair no doubt varies in different localities, as may be seen in the published accounts and figures of these people. It is often smeared also with red ochre and pinguents, whence the accounts of a red-haired people among the islands inhabited by this race. From these circumstances the short hair of the body ought to be observed rather than that of the head, in making notes on the physical structure of savage races.

Australian race.—Of these people we saw some of those inhabiting New South Wales, several tribes on the north-east coast, those of Port Essington, and those of Western Australia, South Australia, and Port Phillip. They were in every case evidently the same race of men. The physical characteristics of the Australians are now well known from the books and plates of recent travellers. Their figure is remarkable for a spareness and lankiness about the lower extremities, the hips and thighs, as well as the calves of the legs; this is observable in the females as well as in the men. Their heads are in general large, with very projecting eyebrows and deep-set eyes, the nose broad, the mouth wide, and

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there is very often a ferocious look, which is not in accordance with the character of the individual. The hair is various, and often matted and twisted with filth and grease into different fashions; when clean, however, it is frequently as fine and glossy as that of the European, with a tendency to form broad open curls in the same way. Its colour is in some of the children of a sunburnt brown; but I never saw other than black hair among the adults. The hair of the body does not differ from that of an European. In their skins they vary from a dark chocolate brown to an almost perfect black. Their hands and feet are usually small and well-shaped. The shoulders and chests of the men are generally broad and sufficiently muscular. The children are almost invariably pot-bellied, a tendency to which structure may sometimes be observed in the adults. The *tout ensemble* of the face, figure, and expression of an Australian is so peculiar that a person familiar with it would have, I believe, no difficulty in picking one out from among the inhabitants even of the immediately adjacent islands.

INTELLECTUAL CHARACTERISTICS.

Malayo-Polynesian race. — As I only introduce remarks on this race for the sake of contrasting them with the others, and consider their characteristics to be comparatively well known, I shall be much more brief in my observations on them than their relative value and importance would demand.

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I shall content myself under this head, therefore, with saying that I do not believe the natural intellectual capacities of the Malayo-Polynesian race to be much inferior to that of any other in the world. Whether we consider their ancient empires in the East, the old kingdoms of Java or Sumatra, of Malacca or Singapore, or their other states in Borneo, Celebes, the Moluccas, and other places, or examine the political and religious institutions of Tahiti, of Tongatabu, or of the Sandwich Islands, we shall see every where springing up, among people of this race, laws, customs, and social establishments, evincing no slight power of mind in their founders, and no mean capacities for the arts of government and the institution and preservation of social order among the people at large. One thing is very striking in this race, which is their quick appreciation and ready reception of all improvements. In the Indian Archipelago, this has been shewn by the reception among the people of Java and the neighbouring islands of the arts and religion of the ancient Hindoos, which was probably a great improvement on their previous rude superstition, and subsequently by the facility of their conversion to the tenets of Islam, an equally great advance upon their Hindooism. In the Pacific, I have only to recall to the reader's mind the easy conversion of the islanders to Christianity, and their rapid attainments in the arts of reading, writing, and other means of enlightenment, and ask him in what part of the world similar

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circumstances have taken place. Even in the wildest of the Malayo-Polynesian tribes, we find hereditary chieftainship, division into different ranks in society, private property, comfortable houses, cultivated grounds, and well constructed canoes. Their languages,* so remarkable for their wonderful family resemblance over so large a space of the earth's surface, are, I believe, always copious, elegant, and expressive, and they all cultivate the arts of music, poetry, and dancing. The favourite weapons of the Polynesian race are the spear and the dagger, and they have no small aptitude for acquiring skill in military evolutions, either at sea or on shore.

Papuan race.—Our information regarding the intellectual characteristics of this race, is of a negative rather than positive kind. They seem to be inferior to the Polynesian race, inasmuch as no effort at civilization has ever sprung up among them. Their political institutions seem to be simple and feeble. We do not hear of any division into ranks or of any hereditary chieftainship or authority among them. They seem to live in small tribes, hostile the one to the other. Of their religious notions nothing is known. They have never attained to any great skill in navigation. Their canoes are commonly small, rudely fashioned, and unfit to en-

* I must refer the reader to Dr. Prichard's work before-mentioned, for the most accessible, interesting, and condensed account of the Great Polynesian language.

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counter the swell of the open sea.* Their agriculture is very rude, and they seem in no instance to have attained to the cultivation of rice or any other sort of grain. I am not aware of any genuine Papuan people having invented or practised the art of making any kind of cloth. Their favourite weapons are the bow and arrow, but they seem never to have acquired any thing like discipline or skill in warfare, although apparently more constantly engaged in it than the Polynesians. The most striking instance of skill and ability among the Papuan people, with which I am acquainted, is that evinced in the erection of the immense houses in New Guinea, of one of which a description will be found in the

* Mr. Blaxland, of Sydney, New South Wales, having often cruized in command of a whaler among the islands of the western part of the Pacific, had written some notes respecting them, which he had the kindness to place at my disposal. He says, "that the canoes of the Papua, or woolly-haired race, are always single, with outriggers; those of the straight-haired Polynesians generally double. The canoes of the Solomon Islands have elevated prows and sterns, inlaid with mother-of-pearl, carrying from forty to sixty men, but being of very frail construction, and the planks very thin, they only ventured in calm weather so much as ten miles from land. The paddles are five feet long, very light, and the blade leaf-shaped, and two feet long." On the north shore of New Guinea he has seen "canoes, ornamented by large heads at the bow and the stern. From these countries the canoes of the woolly-haired races degenerate towards the east, till at New Caledonia they are only fit for the quiet water inside the reefs, and the people of Erroomanga and Tanna have no canoes whatever."

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preceding work (vol. i. p. 271). Of the languages of the Papuans but little is known. It appears, however, that the tongues of the different nations vary much more frequently and more completely than those of the Polynesian race. We had reason to believe that the language of the islands of Torres Strait was different from that of the coast of New Guinea to the northward of them.* It will be seen in our vocabulary, that the islanders counted only by twos instead of tens, and that with this dual notation they seldom went beyond six.

They seem to exhibit some skill and taste in the ornamenting of their canoes, and other implements and furniture, with carving in various patterns, and the carved wooden and tortoise-shell figures we saw among the Torres Strait islanders were much superior to anything I ever saw or heard of among Australians.

Australian race.— The most contradictory accounts have been given of the intellectual capacity of this race. Some persons have degraded them to the level of the monkey, or even of the kangaroo, while from other descriptions, especially those of Captain Grey, I think a rather higher standard would be given them than is their due. To liken the intellect of any, even the most degraded of

* Dr. Latham having kindly offered to give me some notes on our Torres Strait vocabulary in particular, and on the languages of the Papuans in general, I beg to refer the reader to them, as of much higher authority than any I can offer.

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human beings; to that of even the most intelligent of the brutes is absurd; the difference is not one of degree, it is one of kind, however striking may be the occasional analogies between the two. Bearing in mind, then, that it is of human intelligence we are speaking, we are, I think, quite justified in saying that the Australian intellect is of the lowest order. They have nothing that can be called an approach to political institutions, no distinctions of rank, nor any chieftainship, beyond what authority each man can acquire by his personal prowess, skill, or cunning, above his fellows. They are utterly destitute of agriculture and of all manufacture of any kind of material, or tool, or implement, beyond their few weapons, and a rude stone hammer, and some simple nets and baskets. Over the largest part of the coast they were utterly ignorant of any kind of canoe, or any method of passing on the water, until they were visited by Europeans. In those parts where canoes were known, they seemed to have acquired the idea from the islanders of Torres Strait.* They have no huts worthy of the name,

* On the north-east coast of Australia, which the islanders frequently traverse for very considerable distances, and which I am almost inclined to suspect they have in some places colonized, canoes formed of hollow trees, with outriggers, were met with. At Rockingham Bay, in lat. 18°, these were no longer to be seen, but very fairly-formed bark canoes were found. To the southward of that place bark canoes were rarely seen, and were of much inferior construction. In the colony of New South Wales, the only canoe known to the natives was formed of a sheet of

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nor permanent habitations of any kind. Men and women are alike naked, except that in the southern parts of Australia, they wear a kind of rug of opossum skins over the shoulders, during the cold weather. They have no religious notions beyond a feeling of vague superstition. Their languages, although shewing evident traces of a common origin, yet vary so much and so frequently, that a native of one tribe can rarely understand the tongue of another fifty miles distant. Even immediately adjacent tribes often speak totally different languages, as different, for instance, as the German and the Dutch, or the Spanish and the Portuguese.

In addition to these negative characteristics, in which the Australians differ more or less from the Papuans in intelligence, there are more positive distinctions between the two. They differ in those things which they have invented, as well as in those they have not. Among these, two things are most

bark, tied at the ends, which Cook found in Botany Bay, and which the natives still use in shallow coves for fishing. In the same way, on the north coast, the canoes gradually deteriorate as we proceed from Torres Strait to the westward. At Port Essington sheets of bark only were known before the arrival of the Macassar Bughis, and on the north-west coast, neither Captain King nor Captain Stokes mention any other method of crossing the water than on rude rafts, formed of bundles of rushes, or sticks, tied together. In Western Australia, as also in South Australia, even this device had never been hit on by the natives, and the islands close to the mainland had never been visited by them previously to the founding of the colonies.

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remarkable, the throwing-stick for darting the spear, and the well-known weapon, called the boomerang. The latter is quite peculiar to the Australians, but something like the throwing-stick is, I believe, known among the Esquimaux. Neither have ever been mentioned as met with among any Papuan race. The customs of knocking out one or two front teeth and of raising great scars or cicatrices on the skin, so universal among the Australians, are not known among the Papuan race, so far as I am aware. The reason or object of these customs I have never heard explained.

The Australian intellect seemed to me, from my intercourse with them, and with those who knew them well, to be chiefly deficient in the reflecting and inventing faculties, in the capacity for forming abstract ideas, and reasoning upon them; the perceptive faculties, on the contrary, were often very acute, being sharpened by constant practice. In all objects of sense, the Australians are quick at receiving and tenacious in retaining instruction; they would make tolerable mechanics, and are said to readily learn to read and write, of which I have no doubt, and they would easily get off by rote a number of answers to questions on religious or other subjects. I do not believe, however, that they had in any instance, really formed any adequate ideas answering to the words they used, or that hardly one among them could be found capable of comprehending them. They are very ready also in pene-

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trating into the motives and reading the character of those with whom they are engaged, so far as regards the probable conduct of those persons with respect to their own self-interest. In short, the Australians seem to have quick imitative, but no original powers; to have great cunning, but little real intellectual capacity.

MORAL CHARACTERISTICS.

The Malayo-Polynesian race.—The only points in which this race differs in morals from ourselves, or our ancestors, are in their low estimate of female chastity, and in their propensity to cannibalism. Most of the nations of this race seem to have originally allowed to unmarried women the same license that in the rest of the world is confined to young unmarried men, a departure from the strict rule of chastity being looked on as a venial error, rather than an irreparable stain upon the character. As to their proneness to cannibalism, it appears not only in those places where it has been openly and avowedly practised in our own times, as in New Zealand, and among the Battaks in Sumatra, but is shewn by several small traits in the history of other nations of the race, where the practice has long since been repudiated with horror. In Sir S. Raffles's History of Java, he mentions a rebel chief being slain in the presence of the sovereign, and his nobles, to shew their detestation of his crime, cutting out his heart, and dividing among them and eating it.

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Ellis discovered some traces of the practice having formerly existed in the Sandwich Islands and Tahiti, although the natives remembered nothing of it, and were horror-struck at the mention of it.

Papuan race. — Most of the accounts of these people describe their honesty as superior to that of the Polynesian race, and they seem to be less eagerly addicted to pilfering; they are, however, commonly much more hostile and ferocious, sometimes waging open warfare, sometimes having recourse to the grossest treachery. I do not know that in this latter respect they are often to be blamed, for their hostility is but the natural defence of their country against foreign invaders, and their treachery the usual method of warfare among savage nations. In one respect they seem to be most strikingly contrasted with the Polynesian race, namely, in the reserve and chastity of their women towards strangers, but whether their manners are as strict among themselves, or would be found to continue so to Europeans on a longer acquaintance, may perhaps be doubted. As far as our personal observation went they are to be mentioned honourably for their treatment of their women. We never among the Torres Strait islanders saw a woman beaten or abused; and in all the harder kinds of work the men appeared to take their fair share of labour. Their care and affection for their children seemed always great. Although wanting in the engaging liveliness and fascinating manners which are de-

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scribed as characteristics of some of the eastern Polynesian nations, the Torres Strait islanders were of a cheerful disposition, readily engaging in sports and amusement, and their curiosity was easily excited by anything interesting or uncommon. They evinced also considerable perseverance both in their efforts to gain information from us, or to impart instruction to us respecting their language and other matters. They did not exhibit either much cupidity or great generosity, but were always ready to enter into trade, and stood out for what they considered a fair equivalent for their merchandise. They always preferred useful articles to mere ornaments. The conduct of old Duppa and the Murray islanders to Ireland and D'Oyley, the survivors of the wreck of the Charles Eaton, shewed great humanity, and I have no doubt that in all places where Europeans are known, they would have as fair a chance of good treatment among Papuan nations as among any other savage tribes.

Australian race. — It is difficult to make any generalization about the moral qualities of men in so low a state of society as the Australians. Their honesty results in great measure from there being few European articles for which they have any use; articles of food, or a knife, or a hatchet, are by no means safe, where they can get at them. Of chastity they have no idea, as a virtue; but the woman being at all periods of life the property or slave of some man, any infringement on that property is

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resented by him. Their behaviour to their women is often very bad: they beat, and even spear them, on the most trifling occasions. Different tribes vary in the most extraordinary way in their friendliness or hostility to strangers. They appear to be very capricious, and always act on the whim, or impulse of the moment, and for that reason are frequently guilty of the grossest acts of treachery. They have no power of perseverance, or of fixing the attention long upon one subject, unless, perhaps, on the chase of wild animals.

It is useless for our present purpose to speak in detail of the very many peculiar manners and customs of the Australians as described by various authors. Such are the laws of marriage described by Captain Grey, their ceremonial dances or corroborries, the initiatory ceremonies on admitting the boys to the society of men when one of their front-teeth is knocked out, their funeral ceremonies, and others, for which I must refer the reader to the works mentioned in the note.* I wish, however, to observe, that so far as we know, all these manners and customs are confined to the Australians. We did not observe any traces of them among the Torres Strait islanders, except, perhaps, some resemblance in their custom of preserving the bones of the dead, but even this was uncertain. Not only could we discover no traces of these Australian

* The travels of Sir T. Mitchell, Captains Sturt, Grey, King, and Stokes, and of Messrs. Eyre, Hodgkinson, Hodson, &c.

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manners and customs, but we frequently perceived the existence of manners and customs among the islanders not known in Australia; although, from our imperfect acquaintance with the people, we could form no accurate notions of their nature and details.

The geographical extent of the countries now occupied by these several races are the following:— The Australian race is strictly confined to the great island of Australia and its immediately adjacent islets. The same race inhabited Van Diemen's Land, or Tasmania, but here, from their physical characteristics, and I believe also from their language, they seem to have received a slight admixture of the Papuan race.

The Papuan race exclusively possesses the islands on the north-east of Australia, namely, New Guinea with New Britain and New Ireland, the Solomon Islands, the islands called Tierra Austral del Espiritu Santo, and the New Hebrides, and New Caledonia.* It extends also to the

* Mr. Blaxland, in the MS. notes mentioned before, remarks that the geographical boundary of the Papuan islanders is precisely coincident with that of the north-west monsoon. This wind, from the months of November to March inclusive, is the prevalent one over all the space extending from the equator to 10° or 15° S. latitude, and in longitude from Sumatra to the Feejee Islands. It is sometimes experienced to the west of Sumatra as far as the north of Madagascar, and it sometimes also extends to the east of the Feejee Islands into the Pacific Ocean, but these extensions are irregular, and its usual eastern boundary is precisely that of the Papuan race before described. Mr. Blaxland deduces from this fact, coupled with the little skill of

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Feejee Islands, where it is more or less mingled with the Polynesian race, and where the language appears to be of Polynesian origin. It is probable that from New Caledonia proceeded the colony, or whatever it was, that reached Tasmania, and there mingled with the Australian race. To the westward of New Guinea scattered tribes, apparently of Papuan race, are said to occur in the interior of many islands as far west as that called Ende, Flores or Mangeray, and as far north as the Philippine Islands. It has even been said that the Andaman Islands, in the Bay of Bengal, are inhabited by a people much resembling the Papuans, and I have been struck with the similarity of many of their customs to those which are said to characterize some of the wild hill tribes in the centre of India. I believe, however, that many of the stories of tribes of

that race in navigation, the inference that they have travelled from the west into the Pacific Ocean, and extended their migration only so far as the monsoon allowed them. He believes also, from some similarity in the customs of the aboriginal Americans and the Polynesians, and the analogy in structure between the double American balsas and the double canoes of Polynesia, that the latter race have come from America, and that their extension to the eastward was checked by finding the Papuan islands already in possession of a numerous, hostile, and ferocious race. Whatever may have been the origin of the Polynesians, it is certainly most probable that their reason for going round these Papuan islands (whether from the east or west), and not taking possession of them, was the fact of their being previously inhabited by the Papuans.

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people being found in the various parts of the Archipelago must be received with much caution, and that most of the wild people so described will be found, like the Dyaks of Borneo, or the wild tribes of the Malacca Peninsula, to be really of Polynesian race. A mingling of the Papuan race with the Australian probably takes place at the present day in the neighbourhood of Torres Strait, but not, perhaps, to so great an extent as might be expected, for I am inclined to think that the Australians give way and retreat before the islanders.

The great Malayo-Polynesian race is spread over all the remainder of the space between the eastern coast of Africa, and the west coast of America, including Madagascar on the one side and Easter Island on the other, and taking in the Malay Peninsula and the Philippine Islands, and the whole Pacific Ocean.

I am fully sensible how little there is in the foregoing observations that will be new to the Ethnologist; my wish, however, to put some things in a little clearer light, and more especially to render familiar to the general reader what is already known or understood concerning the races of men alluded to, must be my excuse for putting these few notes together and inserting them in the present work.

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APPENDIX.

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APPENDIX.

No. I.

Captain Blackwood having placed at my disposal a copy of the Orders under which he sailed, I give them here in order that the reader may understand the nature and object of our voyage. The subsequent abstract of the voyage will shew something of the way in which the Orders were carried out.

By the Commissioners for executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, &c.

Whereas, a large proportion of the vessels trading to the South Sea, and to Australia, are obliged to return to Europe, or proceed to India, by way of Torres Strait; and whereas, many of those vessels, when weak-handed, in order to avoid the frequent anchorage necessary in the in-shore passage, by what is called King's Route, stand out to sea till an opportunity offers for making one of the narrow gaps in the Barrier Reefs, through which they steer for the Strait; and whereas, several vessels have thus been lost, there being no other guide to these openings than the casual observation of latitude which is often incorrect, there being no land to be seen till entangled within the Reefs, and no Chart on which the dangers are correctly placed.

We have therefore thought fit, for the above reasons, to have the Great Barrier Reef explored, and to have those gaps surveyed, in order that some means may be devised

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for so marking the most eligible of these openings, that they may be recognised in due time, and passed through in comparative safety; and having thought fit to entrust you with the command of an expedition to effect these objects, we hereby require and direct you to take her Majesty's cutter Bramble under your orders, and when she and her Majesty's ship Fly, under your immediate command, shall be in every respect ready for sea, to proceed to the island of Madeira, to verify the rates of your Chronometers there, for which one day's observations will probably suffice; then to Simon's Bay, at the Cape of Good Hope, to complete your water; from thence to Van Diemen Land, where you will compare the observations made with your magnetic instruments with those made at the magnetic observatory by Lieutenant Kay; and then losing no further time, you are to repair to Sydney.

Having refitted your vessels, recruited your provisions, and refreshed your crews, and having procured all the information respecting the Barrier Reefs and openings that can be obtained there, you will proceed to carry into execution the following objects; and notwithstanding the order in which they are here placed, we leave the several periods of their performance to your own discretion.

1. The survey of the exterior or eastern edge of that vast chain of reefs which extends almost continuously from Breaksea Spit to the shore of New Guinea.

2. The thorough examination of all the channels through the Barrier chain, with detailed plans of those which offer a secure passage.

3. When you have examined them all, and considered their several advantages and difficulties, and determined which of them will offer the speediest and safest passage for the generality of merchant vessels, you will endeavour to devise some practical means of marking them by beacons

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of wood, or stone, or iron, so placed on their outer islands or cays, that they may serve to guide those vessels to a certain, and safe landfall. On your return to Sydney, you will consult his Excellency, the Governor, on the best means of effecting this object, if possible, by means of the colonial resources, and you will transmit to our Secretary a full report on the subject.

4. The position and dimensions of the several detached reefs and shoals which lie to the southward of the Great Barrier, and which appear, though with long intervals, to stretch towards Howe Island.

5. The Bellona, Bampton, Mellish, and other reefs to the westward of New Caledonia, may be considered as one large group, and are probably the summits of a ridge of submarine hills, which, taking a parallel direction to the Barrier, form, between it and them, the wide sea channel of approach to the Barrier openings. All these rocks, as well as the Farquhars, must be explored and charted so as to define the eastern and western limits of that channel.

6. In the more immediate mouth of Torres Strait, the reefs, islands, and intervening passages having been discovered at different periods, and laid down by different authorities, assume a most complicated appearance, but by carefully collating what has been done by Flinders, Bligh, King, and other navigators, you will probably succeed in fixing on some comparatively safe channels, by which vessels may pass through from the eastward, and you will consider this to be one of the most important objects of the expedition.

7. In Torres Strait it does not appear that to the northward of Prince of Wales Islands any good channels will be found, and we do not wish that you should spend any valuable time there, nor even between them and Endeavour Strait; but of this latter strait, a complete survey, with its

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tides and soundings, with clear sailing directions, and with its dangers well distinguished by any sea-marks that can be adopted, will be a real boon to the mariner.

These several objects above stated you are to consider as the main purport of the expedition under your command, and to those all others must give way; but as you will occasionally have to seek for wood and water, and as some seasons may be unfavourable to your rapid progress in those quarters, and a change of scene therefore desirable, you are to consider the field of your operations, as comprising the southern shore of New Guinea, and the south-western coasts and islands of Louisiade, and (if necessary for a magnetic station) the western side of New Caledonia. But wherever you go, we expect you to produce full and faithful surveys of the parts and places you visit, and we especially desire you not to waste your time and means in what are called running surveys, in which much work is apparently executed, but no accurate knowledge obtained, useful either to the mariner or the geographer. Whatever you do is to be done effectually. As we have not defined the order in which you are to undertake the several branches of the survey which have been enumerated, so neither shall we limit the periods at which you are to return to refit and re-victual at Sydney, being satisfied that your zeal will be properly tempered by discretion, and that your arrangements will be dictated, not only by the great objects in view, but the health and comfort of the crews. We desire, however, that with prudent foresight, you will forward to our Secretary timely application for such supplies as may be requisite for the efficiency of the vessels under your command.

As you have stated, that during a former voyage you remarked a more than ordinary population on the coast of New South Wales, about the latitude of 20°, from which you inferred a large tract of fertile soil, perhaps traversed

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by some considerable river, you are hereby authorized, when engaged on the Barrier Reef in that latitude, to devote a week or two to the examination of that district.

One of the most essential parts of your duty will be the compilation of sailing directions for the navigation of the whole space which you are instructed to survey; as well as particular instructions for avoiding the dangers with which it is replete; for taking the several channels you may recommend; and for entering the various ports or roads which you may visit—and those directions should include every circumstance that may be of use to the mariner, though not purely hydrographic; for instance, the places where vessels may refuge after any serious disaster at sea, where spars may be cut, when and how water, wood, and other necessaries may be procured; and, in short, the various resources which each place may afford.

The effects of seasons, climates, and indigenous articles of food on the health of the crew, the peculiar products of the country, and the disposition of the inhabitants will also be subjects of great interest, as well as many others, which will readily occur to every officer who is zealous in obtaining, and desirous of benefiting mankind by communicating useful information.

The most approved and costly instruments have been supplied to you for the purpose of pursuing those researches in magnetism, which have excited so much interest in Europe, and so much activity in all quarters of the world. And as certain of your officers have been specially instructed in the mode of observing, you will take care to give them every fair opportunity of adding their contributions to this branch of science; whenever it may not cause any delay in the main objects of the expedition. You will also contrive, if possible, that the movements of her Majesty's ship may be so arranged as to be in some port

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in each of the four *term days*. A gentleman, well versed in geology has been appointed to the expedition, and we have permitted a botanist* employed by the Earl of Derby to accompany it. You will therefore give to both of them every facility to pursue those vocations whenever the business of the Survey may permit, and without retarding its progress: you will allow them also every reasonable assistance in forming and preserving their collections; and you will give them to understand that one perfect specimen of every kind is to be considered public property, and therefore at the end of the voyage, or whenever they quit Her Majesty's ship, to be at our disposal.

Some books with which you have been supplied record the treacherous conduct of the natives of the small islands in Torres Strait; while those of New Guinea and the Louisiades bear a somewhat better character: but in all such places you should be equally on your guard. You will endeavour to preserve an amicable intercourse with them at all times. You should appear to forget their former crimes, and to caution your people against giving them any offence. When purchases are made, an officer should be present to prevent any misunderstanding; and you are to impress on the minds of all under your command, the mischievous consequences of exciting the jealousy of the men, by taking any liberties with the females. It would be a subject of deep regret, that an expedition devoted to the noble purpose of acquiring and diffusing beneficial knowledge, should be stained by hostilities and bloodshed.

In the event of England becoming involved in a war with any nation during your absence, you are to abstain

* A mistake. Mr. Macgillivray, the gentleman employed by the Earl of Derby, was a zoologist; he is now naturalist of H. M. S. Rattlesnake.

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from every act of aggression towards the ships or settlements of that nation, however prudently you may keep on your own guard.

Expeditions undertaken on behalf of discovery and science have hitherto been considered by all civilized communities as acting under their general safeguard, and we trust that you will in all cases receive assistance from the ships and authorities of every foreign Power. Directions will be forwarded to the Commanders-in-chief at the Cape of Good Hope, and in the East Indies, and to the Governors or Lieutenant-Governors of the several settlements at which you have been ordered to call, to assist and further your operations as far as their means will admit.

You are to consider yourself under the command of Vice-Admiral Sir William Parker, Commander-in-chief of Her Majesty's Ships and Vessels on the East India station, while you are in the limits of that station, in execution of the services above mentioned; and we have signified to the Vice-Admiral our desire that he is not to divert you from the survey, nor to interfere with your proceedings; but that whenever the occasion offers, you should receive from him and the officers of his squadron any assistance in stores and provisions of which you may stand in need.

And during the whole time of your continuing on the above duties, you are (notwithstanding the 16th article of the 4th section of the 6th chapter, page 78 of the general printed instructions) to send brief accounts by every opportunity to our Secretary, of your proceedings, of your state and condition, and of the progress you have made; and you will enclose therein detailed reports to our hydrographer, of all your proceedings relative to the Survey, as well as to your execution of the enclosed instructions,

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which have been drawn up by him under our direction, and with which you are strictly to comply.

In the event of any unfortunate accident happening to yourself, the officer on whom the command of the Fly may in consequence devolve, is hereby required and directed to complete, as far as in him lies, the foregoing orders and instructions.

Given under our hands this 29th day of March, 1842.

G. COCKBURN.
W. GORDON.

To

FRANCIS P. BLACKWOOD, ESQ.,
Captain of H. M. S. Fly, at Devonport

By command of their Lordships,
J. BARROW.

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No. II.

ABSTRACT OF THE VOYAGE.

We sailed from Falmouth in H. M. S. Fly, in company with her tender the Bramble schooner, on Sunday afternoon, April 11th, 1842, and anchored at Funchal in the Island of Madeira on the following Sunday morning, April 18th. We remained here a few days to rate the chronometers, and then sailed to Teneriffe, where a party of us ascended the celebrated Pic de Teyde. We carried up a mountain barometer, and the mean of our observations gave 12,080 feet for its height above the sea. We left Teneriffe on May 3rd, and on May 9th touched for a few hours at Porto Praya in St. Jago, one of the Cape de Verde Islands. We crossed the equator on May 18th, and on the 23rd hove to for a few hours, and landed on the little island of Trinidad. Thence we sailed to the Cape of Good Hope, where we anchored in Simon's Bay on June 19th. We stayed here some time to refit and refresh, and also to compare our magnetic instruments with those of the observatory at Cape Town. We again sailed on July 14th, and on August 5th anchored under the little island of St. Paul's, and visited the interior of the crater in our boats. On August the 27th, we entered Storm Bay in Van Diemen's Land, and remained at Hobarton till October 6th. Then calling for a day or two at Port Arthur, we proceeded to Sydney, where we arrived on October 15th, and remained till November 24th. On November 26th, we entered Port Stephens, and having then completed our preparations and collected all the preliminary information we could acquire,

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we sailed thence on December 17th to commence the survey.

This was begun on December 21th at Sandy Cape by the examination of Breaksea Spit. From this point the survey was regularly carried on through the Capricorn Group of islands and Swain's Reefs, up to lat. 21°. We were then obliged to go to Port Bowen to repair some damages. Here we remained from February 14th, 1843, to February 28th, during which a detailed survey of the Port was completed. Thence we sailed through the Percy Islands to West Hill, a little north of Broad Sound, where we found a supply of water, of which we were beginning to run short. The Bramble had been dispatched to look for water, and found it in abundance a little north of Cape Hillsborough. The coast from West Hill to the northern part of Whitsunday Passage was then surveyed, a part that had only been hastily sketched in by previous expeditions. On March 30th we anchored under Cape Upstart, where we remained the rest of that month, repairing the boats, and raising and decking the pinnace to enable her to keep the sea during the surveying operations.

We were joined at Cape Upstart by a vessel, the barque William, with a fresh stock of provisions and stores sent up from Sydney by previous agreement. We made several boat excursions during this time. On May 17th we sailed from Cape Upstart with the Bramble and the pinnace (now called the Midge) in company, and the next day anchored in Rockingham Bay, of which an accurate survey was completed by the end of the month.

On June 1st we sailed to the northward, and after heaving to for an hour to look at Endeavour River, on June 4th, we anchored on the evening of that day under Lizard Island. Here was commenced the survey of the outer edge of the northern part of the Great Barrier Reef, which on

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August 8th was completed up to the Murray Islands. On August 14th we left Torres Strait, touched for a few days at Port Essington, and at Coupang in the island of Timor to procure water and refreshments, and on September 30th anchored at Swan River, where we remained a month and then returned to Hobarton.

The Bramble remained a fortnight after us at Swan River to complete her refitting, and endeavour to recover some deserters; and on sailing, her commander, Lieut. Yule, undertook to carry round some specie for the Colonial Government to King George's Sound. In entering this port, and beating through the narrow entrance to the inner harbour, she unfortunately grounded on a rock, where she remained for four days. It blew hard during part of the time, and after suffering considerable damage to her bottom, she beat over it. She arrived safely, however, in Hobarton, though very leaky, was hove down at Port Arthur and partially repaired, but was obliged to be taken onto the patent slip on her arrival at Sydney.

On January 8th of the year 1844, we left Hobarton again, and anchored at Sydney on the 13th. As Captain Blackwood had determined on the erection of a beacon on Raine's Islet to mark the entrance of a good passage through the reefs, he, in obedience to his orders from the Admiralty, applied to the Colonial Government for assistance. The Colony, however, was in such a very depressed condition at that period, that the only assistance that could be afforded was the loan of twenty picked convicts, chiefly masons and quarry men, and of a small revenue cutter, the Prince George. The latter required much alteration, repair and refitting, before she could be adapted to the service. This, together with the repairing of the Bramble, the purchasing and selecting and stowing away of the large quantity of material, tools, implements, wooden houses, &c., and the

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increased quantity of provisions we required, detained us in Sydney till March 27th. We then sailed, and after touching at Port Stephens we rendezvoused at Sandy Cape, where we completed our water from an abundant supply immediately behind the beach, about seven miles within the point of the Cape. We then passed through the Capricorn Group, and the Percy and Northumberland Islands, to Cape Upstart, making some additions to our previous surveys by the way. At Cape Upstart we again filled our tanks and water-casks, and after experiencing a good deal of blowing weather along the north-east coast, we commenced landing the stores on Raine's Islet on May 27th. As soon as the party was landed, and the houses and tents put up, a quarry was opened at the east end of the island, near the spot selected for the erection of the beacon. The stone was a coral rock, an agglutinated mass of grains and fragments of corals and shells; it worked easily into square blocks, and promised to be sufficiently durable. The lime was procured by burning the large shells of the tridacna and hippopus, which were to be got in abundance from the reef at low water. One or two wells were sunk in the island, but no fresh water was procured; although in one of the wells, at a depth of 16 feet, the water was only brackish, and could be used to slack the lime, although very unpalatable to the taste. As there was no anchorage near the island, the Fly had to lie about 12 miles off to the south-west, behind the reefs of the Barrier, and the Bramble, the Prince George, the Midge and the boats were employed in running backwards and forwards with provisions, stores, wood and water. Wood had to be sought for on some of the islands near the main, as large quantities were used in burning the lime; and water was procured from Sir Charles Hardy's Islands, where small dams had been erected at the end of the

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valleys to catch all that trickled down them. Beams of wood, required in building, were procured from the wreck of the Martha Ridgway, which was lying on the reefs some 25 miles to the southward of the Fly's anchorage. By the middle of September the party on Raine's Islet, which was under the charge of Lieut. (now Commander) Ince, had completed the beacon. This was erected after the design of Mr. Moore, the carpenter of the Fly. It is a circular stone tower, 40 feet high and 30 feet in diameter at the base, where the walls are five feet thick. Internally it was divided into three stories, each of which was partially floored, and made accessible by a ladder. It was roofed at top by a dome-shaped frame of wood, covered by painted canvass. Its summit was thus raised 70 feet above low water mark. A large tank taken from the Martha Ridgway was placed at the side, into which a series of spouts were led from the roof, so that it would shortly be filled with rain water. Cocoa-nuts, supplied by Mr. Macleay of Sydney from his hothouse, pumpkins, maize, and other plants were set in a garden, and had begun to grow and flourish when the Fly left. During the latter part of this time, from August 14th to September 25th, the Bramble was employed surveying Endeavour Strait, and a good part of the ground between Endeavour Strait and Raine's Islet opening was likewise surveyed by the Fly, the Prince George, and the boats. An abundant supply of water was discovered at Cape York, which was then and afterwards very useful to us.

On September 21st the Fly left Endeavour Strait, touched at Port Essington on the 27th, remaining five or six days, and then sailed for Sourabaya in the island of Java. She arrived there on Oct. 19th, and was shortly joined by the Bramble and Prince George. The latter was dispatched to Singapore, to carry up some shipwrecked

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people whom we had picked up among the reefs, and to carry and receive letters and dispatches. She returned to Sourabaya on January 4th.

On January 14th, 1845, the Fly and the Bramble sailed from Sourabaya to return to Torres Strait with the north-west monsoon, leaving the Prince George to follow as soon as she had completed her refitting. We had very heavy weather at first. After a vain attempt to pass through the Strait of Lombock, owing to the strength of the current setting to the northward, we got through those of Alass and again reached Port Essington on January 27th. On February 4th we sailed for Endeavour Strait, and anchored in the entrance of it on the 10th. We had light winds and pleasant weather in this passage from Alass Strait to Torres Strait during the north-west monsoon. From this time to April 19th we were engaged in surveying the central and north-eastern parts of Torres Strait, and succeeded in laying down an excellent track for shipping round the northern extremity of the Great Barrier Reef through the inner reefs and islands, to the entrance of Endeavour Strait. On April 19th the Bramble was sent to try to make her way along the eastern coast of Australia to Sydney. This being against the trade wind had only been twice attempted before, once in the Zenobia by Captain Lihou, who succeeded with great difficulty, and once this very season by a schooner called the Heroine, Captain McKenzie, the success of whose attempt we were as yet unaware of. Lieut. Yule not only succeeded, but added 120 miles to the Survey of the Barrier Reef, continuing it from Lizard Island to the southward as far as lat. 16° 40′.

In the mean time the Fly and Prince George went to explore a part of the coast of New Guinea, to the northward and eastward of Torres Strait. Having surveyed as much of this as was possible, owing to the difficult and dangerous

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nature of the navigation and other untoward circumstances, we were obliged, on June 2nd, to close our labours from want of provisions, and proceed to Port Essington for a supply.

We arrived at Port Essington on June 12th, and found here about 70 people who had been wrecked in coming up from Sydney to Torres Strait. These formed the principal part of the crews and passengers of two large merchant vessels, the Hyderabad and the Coringa Packet. They had reached Port Essington in their boats. As the small military post of Port Essington could not support this population long, and no other vessel was likely to put in for some months, we were under the necessity of carrying them up to Singapore. The Prince George, after being partially refitted, was sent round to Sydney, taking a few of the wrecked prople who wished to return there; and on June 18th we sailed with the remainder in the Fly, and arrived at Singapore on July 5th.

Sir Thomas Cochrane, the Admiral of the station, being now at Malacca, we went up there to communicate with him, and then returned to Singapore.

We left that place on August 3rd, and beat down against the trade wind through the Strait of Banca to Anjer in the Strait of Sunda, where we remained August 19th, and sailed on the 20th. The south-east trade carried us to south lat. 30° 15′, east long. 89° 05′, on August 31st, whence strong south-west winds took us into Bass's Strait and thence to Sydney, where we anchored on September 25th. We here found orders awaiting us, directing the Fly to come home, but Lieut. Yule in the Bramble to continue the Survey, with, if possible, a colonial vessel as her consort, under the command of Mr. now Lieut. Aird. The Fly having rubbed her bottom against some of the coral reefs was hove down and examined, and a small

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schooner, called the Castlereagh, was purchased for the Government, and fitted out as the Bramble's consort. These arrangements detained us till December 19th, when we left Sydney on our voyage home. We passed through Bass's Strait, and touched in at Port Phillip on December 19th, and remained till January 11th, 1845. On January 15th we anchored in Holdfast Bay, South Australia, and remained till the 22nd. On February 10th, after a stormy passage with strong contrary winds in rounding Cape Leeuwin, we anchored in Gage's Roads, Swan River, and remained a week. On February 19th we sailed, having Mr. Hutt, the late Governor of Western Australia, as a passenger, and arrived in Simon's Bay, Cape of Good Hope, on April 6th. On April 15th we again sailed, touched at St. Helena on April 30th, and anchored at Spithead on June 19th, after an absence from England of four years and eleven weeks.

The results of the voyage may be briefly stated as follows:—

The surveying and charting of the sea stretching northwards from Sandy Cape as far as lat. 21°, including the Capricorn Group of islands, the widely spread mass of the Swain's Reefs and the broad passage between them, and the plan of Port Bowen. This is a tract 200 miles in length and in some part 100 in breadth.

The survey of the coast of the main land and the adjacent sea from West Hill to the northern part of Whitsunday Passage. This coast line is about 110 miles long.

The survey of Rockingham Bay.

The survey of the outer line of the Great Barrier Reef from lat. 16° 40′ to its extremity in lat. 9° 20′, a distance of nearly 500 miles. The survey of some part of the sea outside this line, and of large portions of that inside of it, or between it and the main land.

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The erection of the beacon on Raine's Islet as a mark for the best passage through the outer line of reefs.

The survey of Endeavour Strait and of all the eastern portion of Torres Strait from Cape York to the coast of New Guinea, a tract that may be stated as 100 miles in length by 60 or 70 in width, and crowded with separate reefs and islands.

The survey of 140 miles of the coast of New Guinea, with its wide spread banks of shoal soundings, and the mouths of some of the numerous freshwater channels which intersect that coast in every direction.

In addition to these hydrographical surveys and the astronomical observations necessary for their correction and completion, magnetic observations of various kinds were taken as opportunity offered, both at sea and on shore.

Lieut. now Commander Shadwell had charge of these observations, and has communicated to me the following remarks. "Many of these observations only derive their "value from a comparison with those of other observers "and are not capable of any immediate popular result. "In connection with other observations now in progress they "will probably at some future period be discussed by Col. "Sabine, R.A., to whose zeal and ability the task of reducing "the observations of the Ordnance and naval magnetic "observations is confided by H.M. Government.

"The following Table of the dip and variation of the "magnetic needle at various places touched at during the "voyage may be perhaps of some interest to the reader."

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Table of the Magnetic Dip and Variation

At several places visited in the Voyage of H. M. S. Fly, principally on the Coasts of Australia and parts adjacent.

Station.	Date.	Dip.	Variation.	Remarks.
Falmouth,				
Mr. R. W. Fox's garden, Madeira,	April 1842	69° 1′.5 N.		
British Consul's house Teneriffe, Santa Cruz,	April 1842	60° 2′.3 N.		
Comdt. of Marine's garden Cape of Good Hope,	May 1842	57° 17′.2 N.		
Magnetic Observatory .	July 1842	53° 20′.2 S.		
Same place	April 1846	53° 31′.2 S.		
Cape of Good Hope,				
Simon's Bay, near the fort	July 1842	53° 22′.4 S.		
Same place	April 1846	53° 31′.4 S.		
Western Australia,				
Freemantle,				Lat. 32° 3′ S.
Harbour master's garden.	Oct. 1843	62° 43 .7 S.	4° 30′ W.	Long. 115° 47′ E.
Same place	Feb. 1846	63° 6′ S.		
South Australia,				
Glenelg, near Adelaide				Lat. 34° 57′ S.
(near the Flagstaff) ..	Jan. 1846	65° 28′.4 S.	6° 16′ E.	Long. 138° 33′ E.
Port Phillip,				
William's Town,				Lat. 37° 52′ .
Harbour master's garden	Jan. 1846	66° 57′.5 S.	8° 33′ E.	Long. 144° 56′ E.
Tasmania, Hobarton,				
Magnetic observatory .	Sep. 1842	70° 37′.2 S.	9° 43′ E.	
Same place	Dec. 1843	70° 37′.2 S.		
Tasmania, Port Arthur				Lat. 43° 9′ S.
Commandant's garden .	Oct. 1842	71° 2′.2 S.		Long. 147° 58′ E.
Same place	Jan. 1844	71° 7′.2 S.		
New South Wales,				
Sydney harbour,				
Garden Island	Nov. 1842	62° 37′.2 S.		
Same place	Feb. 1844	62° 44′.7 S.	9° 25′ E.	
Same place	Nov. 1845	62° 31′.2 S.		
New South Wales,				
Port Stephens,				Lat. 32° 40′ S.
Captain King's garden .	Nov. 1842	61° 23′.7 S.	9° 45′ E.	Long. 152° 2′ E.
Same place	Mar. 1844	61° 28′.8 S.		
N.E. Coast of Australia,				Lat. 24° 43′ S.
Sandy Cape.....	Jan. 1843	52° 23′.5 S.	7° 50′ E.	Long. 153° 15′ E.
Same place.....	April 1844	52° 24′.8 S.		
N. E. Coast of Australia,				
Port Bowen,				Lat. 22° 31′ S
Clinton Bay	Feb. 1843	50° 16′. S.	8° 50′ E.	Long. 150° 49′ E.
N. E. Coast of Australia,				Lat. 19° 43′ S.
Cape Upstart	April 1843	47° 15′.8 S.	6° 58′ E.	Long. 147° 50′ E.
Same place	May 1844	47° 13′.6 S.		
N. E. Coast of Australia,				
Rockingham Bay,				Lat. 18° 9′ S.
Gould Island	May 1843	45° 1′ S.	6° 53′ E.	Long. 146° 14′ E.
N. E. Coast of Australia,				Lat. 14° 39′ S.
Lizard Island	June 1843	39° 24′.7 S.	6° 50′ E.	Long. 145° 32′ E.
Same place.....	May 1844	39° 34′.4 S.		

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Station.	Date.	Dip.	Variation.	Remarks.
N. E. Coast of Australia,				Lat. 11° 56′ S.
Sir C. Hardy's Islands.	July 1843	35° 29′.7 S.		Long. 143° 39′ E.
Same place.....	May 1844	35° 31′.6 S.	3° 12′. E.	
N. E. Coast of Australia,				
Barrier Reefs,				Lat. 11° 35′ S.
Raine's Islet	June 1844	35° 1′.2 S.	4° 0′ E.	Long. 144° 6′ E.
Torres Strait,				Lat. 10° 39′ S.
Mount Adolphus....	Aug. 1843	33° 46′.2 S.	4° 0′ E.	Long. 142° 40′ E.
Same place.....	Aug. 1844	33° 50′ S.		
Torres Strait,				Lat. 9° 35′ S.
Erroob Island	April 1845	32° 6′.2 S.		Long. 143° 45′ E.
N. Coast of Australia,				
Port Essington				Lat. 11° 7′ S.
Victoria	Feb. 1845	35° 21′.4 S.	2° 10′ E.	Long. 132° 12′ E.
Java,				Lat. 7° 14′ S.
Sourabaya	Nov. 1844	28° 48′ S.	0° 58′ E.	Long. 112° 43′ E.
Singapore,				Lat. 1° 16′ N.
Magnetic Observatory .	July 1845	12° 34′ S.	1° 56′ E.	Long. 103° 53′ E.

In the department of Natural History all the results of the voyage have not yet been arrived at. The zoological collections, amounting to between 4 and 5000 specimens, were principally placed at the disposal of the Zoological Department of the British Museum, and such things as were new or interesting were selected by the officers of that department, by whom they will ultimately be arranged and described.

The Geological collections were similarly submitted to the Geological Society of London, by whose curator, Mr. Sowerby, the most desirable specimens were selected for the society.

My own observations on the Geology of the countries we visited, are either embodied in the present work or will be laid before the Geological Society.

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No. III.

COMPARATIVE VOCABULARY

OF THE

LANGUAGES

OF

SOME PARTS OF TORRES STRAIT.

In this Vocabulary, the column headed "Lewis's Murray Island" was taken from a copy of one that I believe was made by Mr. Lewis when commanding the Isabella in search of the survivors of the "Charles Eaton." He had the advantage of having young Ireland as an interpreter, who had resided two years upon the island. The vocabulary, however, seemed to have been carelessly compiled, as there was no kind of arrangement in it, alphabetical or otherwise; neither had any system of orthography been adhered to, as the same word was often spelt in different ways. It has, no doubt, suffered also by the errors of the transcribers. The copy from which ours was taken was procured by Mr. Evans from Captain Ashmore of Sydney, who lent it us for transcription. I subsequently arranged it on the same plan as our own, and

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have given it in parallel columns, without altering any of the words.

Our own vocabulary was almost entirely collected by Mr. Millery of the Fly, who, to great diligence and acuteness in collecting the words, added an excellent musical ear for appreciating their correct sound. I transcribed his vocabulary, and made some additions of my own, at the same time slightly altering the system of orthography, in order to make it, as I believe, more precise, and more easy to be understood. Instead of marks of accentuation, which are always liable to mistake, I have, when necessary, put marks of quantity over the vowels. By numbering the words, I have been able easily to refer from one part of the vocabulary to the other, by appending the number of the word I wish to refer to. In this manner the composition, or derivation of the words, is often pointed out.

Respecting the grammatical structure of the language, we, of course, could learn little or nothing. It is remarkable, however, in the 800 words included in the vocabulary, how many compositions can be resolved, and derivations detected. In a vocabulary of about 500 words, collected by Mr. Macgillivray at Port Essington,* hardly a single derivation, or any other kind of relation, could be perceived between one word and another; while, from what we see in this vocabulary, we have reason to expect that there is hardly an expression for a compound or derived idea in the Erroobian language but what the composition or derivation can be traced in the expression.

The appropriateness of the sound to the meaning is also

* Mr. Macgillivray has now returned to the shores of Australia and New Guinea, as Naturalist to H.M.S. Rattlesnake, under Captain Owen Stanley. His vocabulary will, therefore, probably be published on the completion of that voyage, with additions and improvements.

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often very remarkable, as in "aress," to strike, to fight, war; "sarreg," to shoot with a bow; "essōmi," to suck; "diskayer," to shake; "nakesimu," or "ecasmy," to split; "debelli," good, handsome; "kib kib," blunt; "goobin goobin," soft.

The enunciation of the Torres Strait islanders is remarkably clear and distinct, a point in which their speech greatly differs from that of most of the Australians, who have always more or less of a jabber.

There are no peculiar sounds in the language of the islanders, if we except a rather peculiar pronunciation of the "d" or the "dz," in which a kind of aspirate is sometimes heard. This sound might sometimes be represented by "dh," sometimes by "dz," and sometimes by "th," or even by the English "j," as in John, where there is also a dental sound. They seemed to have all the sounds of the English language, except that I never heard those of F, G soft, X, or Y consonant.

The islanders always took much pleasure in teaching us their language, and shewed a great readness in comprehending our signs, and great aptitude for giving us information—qualities in which they likewise contrasted favourably with the careless, apathetic, and easily tired Australian natives.

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In this Vocabulary the following rules are observed in the spelling of the words, except in the column marked "Lewis's Murray Island," which is left in its original state :—

1. Every letter is sounded.
2. The vowels are sounded as follows :—

a	is	sounded	like	a	in father.
a	„	„	a	„	fat.*
A	„	„	a	„	fate.
e or ee		„	ee	„	weed.
e	„	„	e	„	wed.
i	„	„	i	„	pine.
i	„	„	i	„	pin.†
o	„	„	o	„	cold.
o	„	„	o	„	cot.
u	„	„	u	„	full.
u	„	„	u	„	cup.
oo	„	„	oo	„	cool.
ai	„	„	y	„	cry.
ow	„	„	ow	„	cow.
ae	„	„	ai	„	gain.

3. Of the consonants, g and c are always hard; ch always soft, as in church; zh has a sound like dz, or tz, or jz.
4. The accent or quantity is marked by the long ¯, and the short ˘.
5. The numbers after a word are to direct the reader's attention to the words in other parts of the vocabulary on the line to which the numbers refer. These often point out the derivations or compositions of words.

* When *a* is final it is scarcely heard, and in conversation it is sometimes used and sometimes not.

† *i* when final is much the same as *e* in sound, and they might be used one for the other.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Masseed, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
150	Dolium	*o*mŏba					
151	Oliva	warrag					
152	Bulla	mo					
153	Pyrula	mabAer					
154	Fusus	do.					
155	Triton	do.					
156	— 2nd sp.	weeyou					
157	Subula	c*a*nnai					
158	Mitra	do.					
159	Strombus	kerAet	. . .	. . .	. . .	atchŭra	
160	Haliotis	sĕpeēr-sĕpeēr					
161	Tridacna	meescor	mishcoor				
162	Lithodoma	tig	. . .	. . .	. . .	piānam	
163	Pinna	mowb, or mowba	. . .	. . .	. . .	waggAer	
164	Avicula	do. „	. . .	. . .	. . .	kedong	
165	Arca	kaip					
166	Corbis	do.					
167	Sanguinolaria rugosa	do.	. . .	. . .	. . .	teekee	
168	Tellina	do.					
169	— 2nd species	weetha					
170	Venus	. . .	. . .	. . .	. . .	wAeda	
171	Cyrena	wagab					

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172	Arca, 2nd sp.	muddoo						
173	Oyster	gaen						
174	Anomia	do.						
175	Pecten	do.						
176	Mactra	. . .	. . .	. . .	. . .	kedowr		
177	Operculum of univalve shell	pot* (64)						
178	Starfish	abaēr						
179	Echinus	nikĕrim						
180	Coral, dead	zhor	ves ves	. . .	. . .	cagarr		
181	— red branched	burrōmar						
182	— fungia	nerzĭsu						
183	Sponge	sab						
184	Seaweed	mow, or mew	. . .	. . .	. . .	. . .	pagar	

III.—Plants, and Things belonging to them.

185	A Tree	iggēr	loomes† (189)	. . .	pul kaid	moë		
186	— felled	sap‡ or saap (283)	. . .	. . .	. . .	betti		
187	Root	lussip						
188	Twig	dissēlis						
189	Leaf	papek ? lum	lum					
190	Seeds	. . .	naig					
191	Plantain tree & fruit	cabbow, or cabba	gobbow					

* Literally "a nail."

† Probably "foliage," from lum.

‡ The root, probably, of the word sapăra, an axe.

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COMPARATIVE VOCABULARY.

I.—The Human Body and its Parts.

No.	English.	Erroob and Maer.	Lewis's Murray Island.	Masseed, &c.	Cape York. 1st Party.	Cape York. 2nd Party.	Port Lihou.
1	Man, white	kaimeer, lammar	lammar*	garrack?	cajĕe-ūtan?		
2	— black	kaimeer	lea or leh				
3	Woman	coskeer, mada	"girls" neur				
4	Child	kabelli	cabille				
5	— full grown	owl					
6	Head or skull	kerēm, kerim	keerim				
7	Forehead	morrōp, mat	maat	skull cöic	eebu	cöicu	cöic
8	Temples	ēecab	. . .	. . .	. . .	paru	paru
9	Cheek	bag	bhog	. . .	. . .	bag	
10	Eye	irkeep	illcap	dana	dana	dâan	danăcap
11	— brow	irkĕ-moos (28)	. . .	webăsa	. . .	nontcha	samŭdan
12	— ball	poni					
13	— lid	poni pow	illcamoosh†				
14	— lash	poni moos (28)	. . .	dam-mūchi	. . .	tchamŏdan	
15	Ear	laip, gereep, pell	pell or peel	caroosa	coora	quoira	cowra
16	Nose	peet	peet	peechi	peechi	. . .	peeti
17	Nostril	noonor	. . .	carrab	. . .	. . .	peetĭsec (616)

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18	Septum narium	peeta-l*e*t‡					
19	Perforation of	peeta-cos	. . .	. . .	. . .	. . .	gob*a*
20	Mouth [do.	nooga, tay or tae	teea or teh	anc*a*	anc*a*		
21	Lips	meet	taip or meet	eerăgoo	. . .	. . .	godu
22	Teeth	t*i*rre*g*	teerig	dang	danga	danga	dang
23	Gums	meeta-let‡					
24	Tongue	w*e*rroot	weiroot	nAy	nAy	. . .	nAy
25	Chin	eeb*a*, *i*moor	emmoor	eebu			
26	Face	. . .	aup or awop				
27	Jaw	. . .	eeb				
28	Hair, in general	moos	mush or moosh	moochi			
29	— of the head	kerim moos	kerim moosh	yal	ya	eeal	yal
30	— when twisted	ēedh*a*					
31	Beard	immoos§	emmoosh	eeta-moochi	. .	eeāte	yat
32	Mustachios	. . .	. . .	. . .	. . .	. . .	gud*o*p
33	Neck	p*e*rre*g*	perhaig	currca	cawta	kercuk	
34	Windpipe	mAer					
35	Pit of neck or stomach	n*i*rkeep					
36	Shoulder	tugar	maate or puggas	joob	. . .	od*e*r	jur

* Lammar is also said to mean a ghost or apparition. It is well known that the Australians look on white men as departed spirits, and it seems from this that the notion is also held by the Papuan islanders.

† This is evidently a mistake for eye-brow, as is seen in our column.

‡ Let is, I think, a contraction of leed, "bone," (76.)

§ Immoos, a contraction of "eeba-moos," "chin hair."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Massied, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
37	Shoulder blade	gĭleed	. . .	. . .	. . .	. . .	narbĕr/t
38	Back	sorr	coor	keeb	taboo	. . .	cal
39	Backside	montop	. . .	coopa	coopa	goĕda	coopa
40	Breast	nAem	naham	camāta	. . .	darr	
41	Nipple	nonoo					
42	Ribs	billeed	reed				
43	Belly	kāem	tiboo	maita	maita	wAeroo	
44	Navel	coopōr*	koupore	coopōr	coopōr	. . .	coopōr
45	Penis	eebu	. . .	eeni	. . .	eeni	
46	Testicles	geboo	. . .	. . .	eeni	carcor	
47	Hair of groin	comoos (28)	. . .	. . .	. . .	nadool	
48	Pudendum mu-	meega					
49	Joint [liebre	cok					
50	Arm	pagas, tag	taag or tawg	jooba	woodoo		
51	— pit	kenāne	. . .	. . .	. . .	. . .	arang
52	— hair of	kenāne moos	. . .	. . .	. . .	nontcha (11)	arang seca
53	— fleshy part of	tag med (68)					
54	— fore arm	. . .	. . .	. . .	. . .	tīepi	
55	Elbow	cok, ow cok, tag	taag	. . .	. . .	. . .	codulu
56	Hand	tag [ow cok	. . .	geta	geta	gīeta	
57	— palm of	tag gab (71)	. . .	. . .	. . .	. . .	cocogeta (70)
58	Finger	. . .	. . .	. . .	. . .	. . .	getu

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59	Thumb	owka† (510)	aukee	kabbiget‡ (549)	kabbiget‡	. . .	kabbiget‡
60	Forefinger [do.	bowka§	boulkay				[dudaget
61	Middle and ring	aepka (518)	abekay	. . .	. . .	. . .	dadăget or
62	Little finger	kabbĭka (549)	cabbekay	*cutadĭmoor*	. . .	. . .	carget
63	Wrist	cok, kabbi cok, tag kabbi cok	taag				
64	Nail	Pot, pot-pote	tapoo‖	anwarr	. . .	terr	tal
65	Thigh	waki	wakei	capi	capi	capi	docap
66	Knee	cok, ow cok, taertar ow cok¶	. . .	colu	coola	. . .	colu
67	Shin	sered	. . .	narra	narra	tronya	
68	Calf of leg	maed, taertar maed	. . .	mad	. . .	madoo	warmad
69	Ankle	cok, kabbi cok, taertar k. c.	tetter lede				
70	Foot or leg	taertar	taerter	. . .	coko	cokoo	coco
71	Sole of foot	gab or taertar gab (222)	. . .	. . .	. . .	. . .	cocomoe
72	Heel	. . .	. . .	eel?	oomu		
73	Great toe	same as fingers	. . .	demu	taertāre	caedj	cabbĭcok
74	Other toes	. . .	. . .	. . .	. . .	. . .	demor

* Shouting this word, and patting the belly, seemed to be a common friendly salutation between strangers on approaching from a distance.

† Literally "the big one."

‡ In these dialects, on the contrary, the thumb is called "the little one."

§ This means "the pointer." Bowr is a long instrument used in directing the turtle peg; the two next are called middle fingers, and the fifth "the little one," as with us.

‖ Tapoo is merely a contraction of "tag pot," "the hand nail."

¶ Cok meaning joint in general, the knee is called taertar ow cok, "the leg big joint," and the ankle taertar kabbi cok, "the leg little joint," and so of the other principal joints of the body.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Massied, &c.	Cape York. 1st Party.	Cape York. 2nd Party.	Port Lihou.
75	Toe nail	tAertAr pot	. . .	. . .	. . .	tarr	
76	Bone	leed	leed	. . .	. . .	reed*a*	
77	Flesh	gAem	gam or gaam	. . .	. . .	gAem	
78	Skin	*e*goor	. . .	. . .	narra*		
79	Vein	kirar	. . .	kirer			
80	Blood	mam (540)	maam				
81	Sweat	merAeg	merraig				
82	Skeleton	gaem cok† (796) (77)	geam cok				
83	Leprosy	gaem cakĭka‡ (569)					
84	Adjunct implying pain	assi (454)	esse or esce				
85	Head-ache	eecāb assi	eacop esse				
86	Tooth-ache	terrēgis assi					
87	Ear-ache	gereepis assi					
88	Elephantiasis	dAeb					
89	A sore or wound	bāad					
	II.—Animals and Things belonging to them.						
90	Dog	oomai	. . .	ooma	ooma	. . .	oomai
91	Pig	burroom§					
92	Kangaroo	. . .	. . .	. . .	oosa, oochar, [peean	. . .	oochar, peean
93	Opossum	bareet‖					

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94	Rats or mice	mokees	mokice or mokees				
95	Dugong	degaer	. . .	. . .	. . .	. . .	dungoll
96	Porpoise	. . .	beed				
97	Whale	. . .	degge				
98	Bird	*i*boo	abbor				
99	— eggs	. . .	vear				
100	— nest	. . .	wootab¶ (741)				
101	Emu	sam or sama**	. . .	. . .	domu	. . .	milo, chamo
102	Booby	bowger					
103	Hawk	. . .	. . .	. . .	. . .	. . .	catāmo
104	Pigeon	gainoo, dowmer					
105	Cuckoo	boolee††					
106	Fowl	. . .	. . .	marook‡‡			
107	Wing	looba§§ (98) (428)					
108	Feather	păleess	abborloo§§ (98) (428) quill do.				

* Probably a mistake from having pointed to the flesh over the shin bone—see 67.

† Literally "fleshless." ‡ Literally "white flesh."

§ They gave this name to some boars' tusks procured from New Guinea, and to our pigs on board.

‖ This animal was a "Cuscus," from New Guinea.

¶ Literally a bed or sleeping place.

** The feathers got at Erroob and Maer turned out not to be emu's feathers, and were probably got from New Guinea; perhaps they were from a cassowary. At Cape York and Port Lihou the Australian emu was probably the bird referred to.

†† This was a small species of cuckoo, of which I never heard the cry.

‡‡ The name they gave to a fowl on board ship.

§§ Literally "a thing of a bird," contracted from "loo-iboo."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Massied, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
109	Curlew	carroo					
110	Heron (blue)	sopem					
111	Adder	. . .	tahboo				
112	Lizard	. . .	punnepun				
113	Turtle	nam	naam, — eggs, vessore	warroo	warroo	. . .	warroo
114	Fish	wap*i*	laar	wapi	wapi, bidu	. . .	dulbor, bidu, [warpi
115	— small	toop (245)					
116	— tail	oopi					
117	— dorsal fin	se*rrer*					
118	— pectoral fin	leeb					
119	Shark	beizum	beijum				
120	Cuttle-fish	k*erĭger*					
121	Crab	kark*er*					
122	Box-crab	goorees					
123	Cray-fish	kaya					
124	Fly	n*aggēr*	narregea	. .	. . .	. . .	bol*i*, dragon-fly, coëōp
125	Musquito	. . .	sonney				
126	Ant	soni	. . .	. .	. . .	beenje*	mugu
127	Cockroach	. . .	irrei				
128	Butterfly	cap† (237)					
128*	Spider	. . .	sebbae, or sebbea				

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129	Flea	. . .	nessoor neam‡					
130	Louse	nAem	neam					
131	Shell.	leed (76)						
132	Nautilus	edaid						
133	Ovula	bubo͡oām						
134	Cypræa	mōā	. . .	. . .	. . .	. . .		achu
135	— argus	mokap						
136	— small sp.	peta						
137	Murex	ass						
138	Auricula	ass						
139	Cassis	ass						
140	Nerita	cook	kook					
141	Melo	edzĕra						
142	Turbo	aggAer						
143	— another sp.	seskeep						
144	Helix	coparsor						
145	Solarium	do.						
146	Cerithium	nAmcoed	. . .	. . .	. . .	. . .	turitella tcharāra	
147	Conus	leega						
148	— geographicus	leega-ler						
149	Natica, white	bussor						

* This was applied to the small brown ant that builds the enormous ant hills about Cape York, some of which are eight or ten feet high.
† There is little, if any, difference between the sound of this word and that for an arrow.
‡ Literally "a petticoat louse."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Masseed, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
150	Dolium	*o*mŏba					
151	Oliva	warrag					
152	Bulla	mo					
153	Pyrula	mabAer					
154	Fusus	do.					
155	Triton	do.					
156	— 2nd sp.	weeyou					
157	Subula	c*a*nnai					
158	Mitra	do.					
159	Strombus	kerAet	. . .	. . .	. . .	atchŭra	
160	Haliotis	sĕpeēr-sĕpeēr					
161	Tridacna	meescor	mishcoor				
162	Lithodoma	tig	. . .	. . .	. . .	piānam	
163	Pinna	mowb, or mowba	. . .	. . .	. . .	waggAer	
164	Avicula	do. „	. . .	. . .	. . .	kedong	
165	Arca	kaip					
166	Corbis	do.					
167	Sanguinolaria rugosa	do.	. . .	. . .	. . .	teekee	
168	Tellina	do.					
169	— 2nd species	weetha					
170	Venus	. . .	. . .	. . .	. . .	wAeda	
171	Cyrena	wag*a*b					

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172	Arca, 2nd sp.	muddoo						
173	Oyster	gaen						
174	Anomia	do.						
175	Pecten	do.						
176	Mactra	. . .	. . .	. . .	. . .	kedowr		
177	Operculum of univalve shell	pot* (64)						
178	Starfish	abaēr						
179	Echinus	nikĕrim						
180	Coral, dead	zhor	ves ves	. . .	. . .	cagarr		
181	— red branched	burrōmar						
182	— fungia	nerzĭsu						
183	Sponge	sab						
184	Seaweed	mow, or mew	. . .	. . .	. . .	. . .	pagar	

III.—Plants, and Things belonging to them.

185	A Tree	iggēr	loomes† (189)	. . .	pul kaid	moë		
186	— felled	sap‡ or saap (283)	. . .	. . .	. . .	betti		
187	Root	lussip						
188	Twig	dissĕlis						
189	Leaf	papek? lum	lum					
190	Seeds	. . .	naig					
191	Plantain tree & fruit	cabbow, or cabba	gobbow					

* Literally "a nail."

† Probably "foliage," from lum.

‡ The root, probably, of the word sapăra, an axe.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Masseed, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
192	Plantain leaf	cabbă-lum					
193	Cocoa-nut, fruit	boonārri*	woo	boonārri			
194	— husk	oou, mes, mooti					
195	— shell	leed (76)					
196	Pandanus tree & fruit	eenow	. . .	. . .	. . .	. . .	garra
197	— leaf	towar					
198	Spreading thick tree, with small leaves	enow†					
199	Mangrove tree	zhee					
200	Peppermint tree	pass					
201	Gum tree	. . .	. . .	. . .	. . .	. . .	coorri
202	Bamboo	marēp	marrab				
203	Wild grape	daērku					
204	Bulbous rooted plant	teggaer‡					
205	Sugar-cane	narroo	nerroo				
206	Cane or reed	mepoot, awpĭsu					
207	Yam	ketai§	levver				
208	— 2nd root	weskeep					
209	Sweet potatoe, purple	cak, irrou					

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210	— 2nd sort	orgab					
211	Ginger	kerrāker‖					
212	Tobacco	sucoob	soogoob	sucoob	sucoob		
213	Grass	cowaisu	soogy or loogy	ja	ja	. . .	barri, padam
214	Bread, or any vegetable food	levaer	. . .	aïa			
215	Walnut	. . .	gare				
216	Plank	tap	taape				

IV.—Native Implements, Manufactures, &c.

217	Hut	māeta	meteah	. . .	noita		
218	— door	. . .	metalleh				
219	Shed	beraeg					
220	Garden	gedoop	geddoop				
221	Fence	carr	caer				
222	Path	gab (71)	gab				
223	Bed	. . .	hootab (741)				
224	Canoe	narr, gool	narr	gool	gool		
225	Platform of do.	. . .	tamgeh				

* Boonarri! boonarri! was the cry with which they always saluted us on our first visit to an island which produced them.
† The leaf of this tree was used to wrap the tobacco in when smoking.
‡ From the broad lancet-shaped leaf of this plant the nessoor or woman's petticoat was made.
§ There was a great variety of yam like roots.
‖ This root, when fresh, looked like and tasted like ginger, but when dried it lost all flavour.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Masseed, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
226	Mast	sessĕri	sesseri				
227	— fore	. . .	money go book				
228	— main	. . .	kerasse [ra				
229	Sail, fore	moděra* (252)	nerebettmoode-				
230	— main	. . .	keimar moodera				
231	— mizen	. . .	haip moodera				
232	Paddles	oozher	oozer				
233	Anchor	. . .	paar, pavi				
234	Rope	lag	lag	uroo	. . .	. . .	wuru
235	Bow	sarrĕg	. . .	gāga	. . .	. . .	gagai
236	— string	leta					
237	Arrow	kāep	cap	calack	. . .	. . .	taiac
238	— broad headed	quer kaep					
239	— barb of	boober					
240	Gauntlet, or armlet	cadeek†					
241	Spear	calak	. . .	calack	calācka		
242	Stone headed club	gagabooga, gabăgoob	gabbogab				
243	War spear	dabb, or zhab‡	dabby				
244	Turtle-spear	bowr§					
245	Fishing-weir	toop (115)					
246	Fish-spear	. . .	boul				

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247	— hook	mekek	mekik				
248	— line	arrĭag, mekek-gam, kaed	mekikgam				
249	— basket, wide	weris					
250	— — narrow	terag					
251	Basket, bag, or pocket	epay, epaya	eppei	. . .	ălee	. . .	lee
252	Mat	moděra (229)					
253	Calabash for water	nay peg (436)					
254	Bamboo pipe	zhoob	soocoob mairebb				
255	— bowl of	tarcok					
256	Native drum	warroop					
257	Bamboo jews-harp	daru-bĭri	. . .	darubiri			
258	— comb	kerem seca (6)					
259	Tortoiseshell	kaisu	. . .	. . .	. . .	. . .	tudi
260	Petticoat of women	nassoor‖	nessoor				
261	Wig worn by men	werāki					
262	String of beads	coos¶					

* Their sails are made of matting.

† This is made of strong plaited grass. It fits tight on the left arm from the wrist to the elbow, its use being to defend that arm from the rebound of the bow-string.

‡ On being shewn a throwing stick from Cape York they called it "āpoo;" the islanders don't use it themselves.

§ This is eight or ten feet long, with a round blunt head, into which, I believe, a turtle peg is fixed.

‖ The women's nassoor is made of broad stripes of a plant called teggaer, bulbous rooted, with broad leaves; the girls' nassoor is of narrow stripes, from the inside of the plantain leaf. The stripes are fastened thickly onto a plaited waistband.

¶ Coos is the name for the top of a small olive shell, which, when broken off, is pierced, and strung on a string to make a necklace.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.	Massied, &c.	Cape York.		Port Lihou.
					1st Party.	2nd Party.	
263	Ornamental circlet	mucă muc					
264	Anclet	taertar mucă muc					
265	Fillet for forehead	mata lagări (7) (234)					
266	Armlet*	poota					
267	Girdle	wak	caddick				
268	Pearl-shell ornament	may, or mäee†					
269	Common shell, do.	dibi dibi					
270	Shield shaped shell worn over groin	ebu now (45)					
271	Shell ear-ornament	warāz					
272	Necklace	. . .	nagaré				
273	Small square of plaited grass to do.	gerer moděra					
274	Mask	lowp (26), wonpiss					

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275	Nose stick	keercu						
276	Oval scar on shoulder	coëmow	. . .	coëmai	. . .	(on breast) chadow		
277	Ridge of hair left on women's heads	kaisu‡ (259)						
278	Red ochre paint	mAer						
279	White pigment	geowd						
280	Black do. or charcoal	keg	. . .	. . . .	. . .	boker		

V.—European Articles.

281	Iron	toorree, toolick	toolick	toori, toodi, tooli				
282	Knife	naipo§	queer‖ toolick	naipo				
283	Hatchet	sapăra	dauma oopy kew¶	sapăra				

* This is a band of plaited grass worn above the elbow.

† Circular, or crescent-shaped pieces of mother-of-pearl shell, four or five inches in diameter. The dibi dibi is generally the round top of a large cassis, cut out, and ground smooth.

‡ Probably so called because the hair is cut by a rude tortoiseshell knife or saw.

§ A word picked up from passing vessels; they have a difficulty in pronouncing "f."

‖ Queer means, I believe, "broad," or "flat."

¶ I can make nothing out of these words.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
	European Articles—*continued.*		
284	Spoon	. . .	*caip toolick
285	Scissors	. . .	koomas-koomas toolick
286	Sword	ow naipo (510) (282)	††taiboo ow toolick
287	Musket	sarreg (235)	sarrick
288	Pistol	kabbi sarreg (513)	
289	Cannon	. . .	maag
290	Carpenter's saw	. . .	‡teerick teerick toolick
291	Spike nail	. . .	soaf toolick
292	Glass	. . .	perper (369)
293	— bottle	tarpoor	
294	— looking	perper	
295	Ship	Shippo, or ow shippo	lummanar§ (224) (356)
296	Boat	kabbi shippo, or kabbinar	cabbynar
297	Mast	sessĕri	
298	Oar	oozher	
299	Tobacco	soocoob‖	soogoob, or soocoob
300	— pipe of clay	burar,¶ tarcok	soocoob mairebb
301	Powder and shot	pee**	pee
302	Cloth, clothes	wāllee, or wally	wally
303	Blankets	††moos moos wallee (28)	
304	Hat	. . .	kerrim loo‡‡
305	Jacket	. . .	geam wally (77)
306	Neckcloth	. . .	perhaig wally (33)
307	Paper	. . .	iee an wally
308	Dress	. . .	Tyne
309	P ockets	. . .	heppai (251)
310	Watch	tic a tic	

* Caip is their word for a kind of bivalve shell, used by them as a spoon, so that caip toolick is "iron shell."

† Literally "belly big iron," or "large iron worn at the waist."

‡ Properly, I believe, "tirreg tirreg toolick," "tooth tooth iron."

§ Literally "canoe of the ghosts."

‖ At Masseed and Cape York, "sooca," or "choca."

¶ At Masseed, murrar.

** I never could discover the literal meaning or origin of this word.

†† Literally, "hairy cloth."

‡‡ Literally, "a head thing."

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VI.—Miscellaneous Objects, Alphabetically.

No.	English.	Erroob and Maer.	Lewis's Murray Island.
311	Abscess	. . .	beggoon
312	Abundance	. . .	gaide
313	Accident	. . .	accasmig (659) (762) (772)
314	Acquaintance	. . .	carully, or corolla
315	Affright	geeum	geum, or gaown
316	Afternoon	. . .	kee-em, or keham
317	Afterpart	. . .	coor
318	Amusement	. . .	sagoor (757)
319	Answer	. . .	meer (388) (769)
320	Ante-meridian	. . .	edeem
321	Antidote*	. . .	loocoop
322	Appetite	. . .	veier, varraw (507)
323	Ashes	. . .	tibby
324	Assassin	. . .	mucleembly, or meideembly
325	Back of any thing	cood	coor (38)
326	Breakers	. . .	jouber (438)
327	Brother	berbet	leh
328	Charcoal	kaeg	
329	Cliff of sandstone	naed, or naeda	
330	Clouds†	baz	baaz
331	Country	gaed	gad
332	Courtship	. . .	kogim
333	Cramp	. . .	peetare
334	Cure	. . .	ebbisker
335	Cut, or gash	. . .	eesmey, (640) or deerygay (639)
336	Day	gĕggēr, or geggaer	cess
337	Dirt	la, or lae	
338	Distance	. . .	mooris
340	Dream	. . .	pheim
341	Dung	. . .	leh
342	East	zeai	ieeai
343	End	. . .	seena [reed
344	Family	. . .	mana werrou ou-
345	Father	bab	baab

* Lewis says they often poison each other at Murray Island, but does not say how, or with what, and I cannot guess, as their food appears to be only plain roots, or fish baked at a fire.

† At Masseed, "zheed, or zheea."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
346	Fear	geeum	geum
347	Feast	. . .	leieer anwain feik
348	Feeling	. . .	ettpay, or ithpay (660) [sees)
349	Fire	oora	woor (on fire, es-
350	Flame	bA, or bAe	woor*
351	Front	*t*areem	
352	Foe	. . .	†aress, arress (784)
353	Foot print	taerter mec (70)	
354	Friend	. . .	maralleh
355	Friendship	powd, powda	
356	Ghost	. . .	lammar
357	Glutton	. . .	vessear (320) (654)
358	Grandfather	. . .	keiat
359	Hill	passAer	
360	Health	. . .	debelly (501)
361	Hole	epeet	nabe
362	Island	kabbi gAedor gAd (513) (331)	cabby gad
363	Kiss	*esc*os	ascos
364	Knot	. . .	moocoop
365	Language	mercar, or meer- car (388)	mecar
366	Leap	. . .	curhidar‡
367	Liar	. . .	bess moidiry
368	Lie	bAess	bace
369	Light	. . .	perper
370	Lightning	. . .	do.
371	Line	lagg (234)	lagg
372	Loan	. . .	eekwar bass (667)
373	Massacre	. . .	§keerim deerap (6) (618)
374	Medicine	. . .	loocoop (763)
375	Memory	. . .	decaapul (795)
376	Mischief	. . .	adooltry (471)
377	Misery	. . .	aurithem

* At Port Lihou, the word got for fire was "moi;" but probably by mistake, as at Masseed, "moi" was the word for "smoke;" and at Port Lihou, "uru" was given for "to fire."

† This word also means "strife," "war," a fanciful philologer would no doubt trace it to

"Ἄρες, Ἄρες βροτολοιγε, μιαιφόνε, τειχεσιπλῆτα,"

as I have heard the Australian word, "gin," "a woman," derived from the Greek "γυνή."

‡ We got this word for "to run." § Literally a "head breaking."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
378	Mistake	. . .	habbah
379	Moon*	mAeb	mabe
380	Mother	ama	hammah
381	Mourning	. . .	boothé
382	Mountain	. . .	backeerie†
383	Multitude	. . .	gaide
384	Murderer	. . .	meideemly
385	Name	nAe	ney
386	News	. . .	mercab (769)
387	Night	. . .	keig (328)
388	Noise	meer	meer
389	Noon	gegger togi (336)	
390	North	cooki	kookey
391	Oil	. . .	eed
392	Opening	. . .	eessak
393	Peace	powd, powda	paud or poude
394	Peak	passAer	
395	Piece	pec	mooh
396	Plenty	. . .	gaide, or oeus oeus
397	Poison	. . .	commer
398	Present	. . .	looguisho (428)
399	Rain	immer, or immAer	hidmer
400	Reef	. . .	nore
401	Relatives	. . .	karilba
402	Rock	bakeer	
403	Rust	toolic lAe‡	
404	Sand§	wAe	vea
405	Sea	carrem	carrem
406	Shelter	mooda	mood
407	Shipwreck	. . .	nar di pigney
408	Shooting star	. . .	‖vear backyam
409	Short knife	. . .	ussar ussar toolick
410	Showers	. . .	hidmere
411	Silence	. . .	decayer, mercok¶ (388) (376)
412	Simpleton	. . .	maddoop

* At Masseed, "keecha, or melpal."
† This word was always used by them to us to signify "stone," or "rock."
‡ Literally, "iron dirt."
§ The second party at Cape York gave me "apa" for sand.
‖ Literally, "star moves."
¶ Literally, "noiseless."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
413	Sister	berbet	
414	Sky*	baz	
415	Smoke†	kammoor	camoor
416	Sneer	. . .	adoot hope‡ (471) (26)
417	Soil, or earth	saep, or saeb	sape
418	Son	werraem	
419	South	saggaer	saggore
420	Star	waer	vear, or ver
421	Stone	bǎkeer	backerry
422	Stranger	. . .	neatedally
423	String	lagg	lag
424	Sun,§ sunshine	gegger, or gergaer	gilgere
425	— rise	seri nemārida	
426	— set	gegger beraigĕda	
427	Thief	. . .	irrooamsis
428	Thing	loo‖	loo
429	Thunder	. . .	geerygee
430	Tide	mec	
431	— flood	mec togāle	megogree
432	— ebb	mec omāri	megeerap
433	Truth	. . .	agukar, or agika
434	Untruth	baes	bess
435	War	. . .	barress (784)
436	Water, fresh¶	nie, or nae	nea
437	— salt**	goor	goor
438	Waves	. . .	jouber
439	Well of water	nae pat	neypaat
440	West	naiger	niger
441	Wife	coskeer	cockgeer
442	Wind	wag, or waag	wagg
443	— contrary	. . .	waguret
444	— fair	. . .	wagudcake
445	Writing	. . .	warrawar

* At Masseed, "rab."

† At Masseed, "moï."

‡ Literally, "bad face."

§ At Masseed and Cape York, 1st Party, the word was "keecha;" but at Port Lihou, "gerger."

‖ Loo is used either as an affix or a prefix, and has various significations, according to the word it is used with: "iboo loo" (a bird thing) is either a quill or a feather; it is seen in "loogaishu," a present, and must often be translated by "it," as "loo teca" (bring it), "na loo" (what is it).

¶ For fresh water we got at Masseed, "uki," or "nuki;" at Port Lihou, "muki;" and at Cape York, 2nd Party, "chool."

** At Masseed, "oor," and at Cape York, 1st Party, "woor," which are the same as the names for "fire," at Erroob and Murray Island.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
	VII.—Adjectives, Adverbs, &c.		
446	Above	. . .	mooris (339)
447	Absent	. . .	nahgedlam
448	Abusive	. . .	innatoprett (685)
449	Across	. . .	kabackeown*
450	Adieu	. . .	warr, or macaraw
451	Afloat	. . .	tomem
452	Afoot (walking)	. . .	meemîm (806)
453	Again	. . .	caw, coh
454	Agonized	. . .	esce, esce (84)
455	Agreeable	. . .	debelly (497)
456	Aground	. . .	decu
457	Alike	mocācălum	moocacklum
458	Alive	agegg (applied to shells, &c.)	lully awn cok,† cola
459	All	. . .	karrah,‡ ah, wey assim
460	Allowed not	(tabooed§) galla	abbak
461	Alone	. . .	tap, tabe
462	Always	. . .	neeaicrem
463	Another	nerrōot	nerroot, narroot
464	Apart	. . .	murrysue, marry-sew
465	Ashamed	. . .	seerip, sirrip
466	Ashore	. . .	gade, or gadd (331)
467	Asleep	. . .	hootide, or wootide (760)
468	Athirst	. . .	neap
469	Awake	. . .	eckeeam, or eckeeom (714)
470	— Eyes open	. . .	illcap backayath
471	Bad	adood	adoot, adootre
472	Before	. . .	taarim (351)
473	Behind	. . .	coor (325)
474	Below	. . .	maash
475	Beyond	māzĕpcor	
476	Black‖	gooli gooli	gooly gooly

* This seems to be merely the word "bakiam" (to go).

† In our orthography this would be "lola owd cok" (not dead nut). I do not know whether the double negative be correct or not.

‡ "Karra" means "give me."

§ A custom, in some measure resembling the "taboo" of the Polynesians, certainly seemed to exist, but we could not quite understand it.

‖ From the 2nd Party, Cape York, I got "boker," meaning either "black" or "charcoal."

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No.	English.	Erroob and Mabr.	Lewis's Murray Island.
477	Blacking the body	. . .	gooly gooly na
478	Blunt	kĭb-kĭb	[bassah
479	Bye and bye	. . .	manna,* manna [(763)
480	Certain	. . .	wonaiquar
481	Clean	*ocok*, or *ogcok*†	ogekak
482	Cold‡	zeeroo	zeroo
483	Crooked	. . .	bal bal
484	Dark	. . .	gooly
485	Dead	owd	awn
486	Dirty	og og	oge oge
487	Drunk	. . .	maddoop
488	Dry	. . .	hidmercok§
489	Early in the day	. . .	gillgeer topam (336)
490	Empty	. . . .	lully kar (528)
491	Far	mazĕpcor	moorso, mooris
492	Fast (secure?)	. . .	inou? (790)
493	Few	. . .	nais nice‖
494	Forgotten	. . .	attapey cock
495	Frightened	geeum	
496	Full	kaem¶ wai itu, kaemca (43)	merry mear
497	Good	debelli	debelly
498	Great	ow	
499	Grey (of hair)	wezar	
500	Growing	. . .	irrai
501	Handsome	. . .	debelly
502	Hard	. . .	kellar or kellahla
503	Here	tooab	tooab (630)
504	Hidden	. . .	isspee
505	Hot	ooruēre (349) (703)	woodwey, or wood-wes
506	How much	. . .	nagget
507	Hungry	werer, weri-agi (322)	
508	Inside	. . .	mur
509	Lame	. .	sirry sirry
510	Large	ow	audery
511	Last	seena, or sana	cenar (seenar)
512	Late in the day		ke barrikee

* "Menna, menna," "stay, stay."
† Literally, "dirtless."
‡ At Port Lihou, "shuma" was given for "cold."
§ Literally, "rainless."
‖ Literally, "four."
¶ Only means "full belly."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
513	Little	kabbi	cabilla, ceger, cabby
514	Loaded	. . .	loogaide (428) (312)
515	Long	. . .	eeh or ehe
516	Low	. . .	negarit
517	Mad	. . .	maddoop
518	Middle	aep (61)	eip
519	More	. . .	ko
520	— no	. . .	seena (enough)
521	Naked	. . .	lew kack*
522	Nasty	. . .	addot (471)
523	Near	maik	maik
524	New	. . .	kilcare
525	Next	. . .	kewoor, or kewoo
526	Nice	. . .	debelly (497)
527	Nigh	maik	maik
528	No, not	lola†	loolly, or lully
529	Now	. . .	faick‡
530	Old	. . .	emmerouth
531	Other	nerroot	nerroot
532	Outside	. . .	athegea
533	Perpendicular	. .	loonethcack§ (553)
534	Pleasing	. . .	sagoor (318)
535	Plenty	dordor (great number	gaide
536	Pretty	debelli (497)	
537	Quiet	meercok‖ (be quiet)	mircok (388) (815)
538	Ready	. . .	pet new pet per
539	Red, painted	mairme	
540	—, natural	mamŏmam (80)	
541	Rich	. . .	debelli (497)
542	Rotten	. . .	sedemear
543	Same as	mocacălum (457)	mocacklum
544	Sharp or shining	garger¶ (424)	gary geer
545	— not	. . .	garry geer cock
546	Short	. . .	topai
547	Sick	. . .	meigg
548	Slow	. . .	bebbear

* Apparently "loocok," "thingless," "without anything."

† As a gesture of dissent instead of shaking the head they hold up the hand and shake that.

‡ They did not know this word at Erroob, and could not pronounce it.

§ From this word I expect that "net" or "neth" or some similar word, means "bent" or "flexible," then "netcok" is "stiff," and "looneth cok" "a stiff thing," "anything upright or perpendicular."

‖ Literally "noiseless." ¶ When applied to a hatchet or iron tool.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
549	Small	kabbi	cabellæ
550	Soft	. . .	goobin goobin
551	Some	. . .	karra naice*
552	Sour	. . .	adootlag (471)
553	Stiff	. . .	netcak
554	Stout	. . .	aulley (510)
555	Straight	. . ,	bal nake akee
556	Strong	. . .	kellahla (502)
557	Sufficient	seena	
558	Sulky	. .	vackoo
559	Sweet	. . .	debellary (497)
560	Thick	. . .	same as hard
561	Thin	. . .	same as soft
562	To-day	. . .	faick giggere (529)
		. . .	(424)
563	To-morrow	sana geggaer	nerrootgiggere(531)
564	Too much	. . .	gaide (312)
565	Ugly	. . .	adoot hope (471)
		. . .	(26)
566	Weak	. . .	same as soft
567	Wet	. . .	hidmer (399)
568	What or how	. . .	nahloo, abloo, or
		. . .	nacqua
569	White	caki caki	cocka cok
570	Wonderful!	wai! wai! wai! †	wha!
571	Worse	. . .	auly
572	Yes	wow, wow	waw
573	Yesterday	. . .	emmeraut gigger
574	Young	. . .	kilcar

VIII. Numbers.

575	One	net*at*	
576	Two	nAes	
577	Three	nāesă nĕtāt	
578	Four	nAes*a* nAes	naisa nice
579	Five	nAes*a* nAes*a* net*at*	naisa nice netat
580	Six	nAesa nAesa nAes	

And so on, they rarely count beyond six, but for higher numbers collect bits of stick in bundles, and "nAesa" repeated three or four times rapidly means an indefinite large number, twice only means "a few," "some," as we should say, "three or four."

* Literally "give me two."

† Exclamations of surprise, often accompanied by flipping the thumb nail against the teeth.

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No.	English.	Erroob and Maer	Lewis's Murray Island.
		IX. Pronouns, &c.	
581	I	. . .	cai
582	Me	ca . .	ka
583	Mine	cara* . .	karra
584	You	ma	
585	Yours	mara	
586	He or him	. . .	mah
587	This one	. . .	abbleah
588	That one	. . .	abbleah
589	This side	. . .	nerroot pack
590	What	. . .	naloo, a eloo
591	What is that	naloo dalli	naloo dalu
592	What is your name	mara nAe macŏdic	marra nay macqua
593	Who are you	. . .	nee ette manailly
594	Where are you going	. . .	marra ged back-yam†
595	His name	nAe etā	
596	What or how is it	na loo	
597	Give me a piece	cară pec	
598	I give you a piece	mară pec	
		X. Verbs.	
599	Accompany	. . .	meenebuk
600	Ascend	. . .	backeoun, hebper (672)
601	Asking	. . .	karratico‡
602	Assist	. . .	tooabook§ (503)
603	Attack	. . .	barress (784)
604	Awake	ekĭam	eckeeam
605	Bake	. . .	heag, or heeg
606	Beat	. . .	aress (784)
607	Begin	. . .	keckeam
608	Be off	. .	lootătāru‖ (428)
609	Be quiet	meercok (337)	[(70)
610	Bend	eegĭ āmi	
611	Bite	erreg, tirrēgĕreg, (22) terĕgo-diskaer¶	eerag

* These words seemed also to be used in the sense of "for me," or "to me," and to be used sometimes as "give me."

† In our orthography "mara gaed backiam," literally "yours the country to go."

‡ "Karratico" is "give me" or "bring me," and would no doubt be used by any one asking for anything.

§ I suspect this means literally "come here," and would of course be used by any one calling for help.

‖ Literally "foot it."

¶ "Terego diskaer" is literally "to shake with the teeth," (see 748).

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
612	Blow at	wag (442)	
613	— a fire	oora tooam	
614	— the nose	kĭkĕmeer (388)	
615	Boil	. . .	decasser
616	Bore a hole	sekaer*	
617	Box the ears	eecābi de tagbor†	(8) (56)
618	Break	narrāpi	irrap or epeet
619	Breathe	naer	
620	Bring here	tecaw or tecca or tecawa, or kareem tecaw‡	
621	Burn	oora ikaiet	woorem
622	— the fingers	oora tagig, (349) (56) tagĭga	
623	Bury	. . .	mooyem ekai
624	Call	. . .	earanakoreę (754)
625	Care, or take care	. . .	ina inou
626	Carry	. . .	looaisé (428)
627	Clap the hands	tag imoo (56)	
628	Climb	. . .	ogee or ohgee
629	Close the mouth	tae ităcŏbi (20)	
630	Come	keitu	kettoo aug, tooaboog (503), coming tobarickee
631	— back	. . .	kettoo aug
632	— here	. . .	kettoo aug
633	— we will never again	. . .	neaicrum na back-yam
634	Cough	cobaek	
635	Cork up	detāput§ (64)	
636	Creep on all fours	ĭdārămi	bebber
637	Crouchon the hams	owsk	
638	Cry, weep	ėėė, or äee	ee
639	Cut‖	itoŏāc	dirry gea
640	— down	essĭmi	
641	— slips off	detĕpe, ditpe	
642	— as with a razor	ĭtoo	
643	— „ scissors	dergei	
644	Crush in the hand	tago de tacobi¶ (56) (629)	

* "Sek" is a hole in Port Lihou dialect apparently, as "peetisek" is a nostril *or nose* hole.

† Literally "to handle the temples."

‡ "Kareem tecaw" is perhaps a mistake for "kara teca," "bring to me."

§ "Taput" is "tagpot" or "finger nail," whence perhaps "a lid or cover."

‖ At Port Lihou "keda."

¶ Probably only means to "close the hand."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
645	Dance*	cab	cab
646	Destroy	. . .	epeet (618) loo deery gai (428) (639)
647	Die†	owd	
648	Dig	waE-et, (404) eckeed,dĭreb,arot, saebdaib (417)	irram
649	Discharge‡	. . .	epspee (301) (504)
650	Dive	cooti-cooti baraig	batterick
651	Draw or write	wardătur (705)	
652	Drink§	eree	erree
653	Drowned	. . .	batteerey
654	Eat ‖	ero, wessAer (357)	irroo
655	Embark	. . .	ecaur
656	Entice	. . .	marry waunagar¶
657	Exchange	. . .	marry macquar¶
658	Fart	mooc	
659	Fall down	. . .	ecasmy (762) (772)
660	Feel	itpAe	
661	Fetch	taertāru (70)**	tickau
662	File	dimoo	
663	Finish	seena (343) (557)	
664	Fly	. . .	bird flying, abbor eecass
665	Get up††	acuë	ekeam
666	— yourself	. . .	maboog ekerick
667	Give‡‡	. . .	equar (372) (656) (657)
668	— me	carra, carratĕca	carratico
669	— „ a piece	carrăpec	
670	I give you	. . .	kai marre macquar
671	Go away	nebakări, bakĭam	[¶

* At Port Lihou "cab."
† At Cape York 1st party, "otinaipa"?
‡ Probably to discharge a gun is meant.
§ At Cape York 1st party "bogoo."
‖ At Cape York 1st party, "goorda."
¶ In these three sentences, we have evidently a different orthography of the same expression, which have accidentally come together in my arranging the vocabulary in alphabetical order. They probably both mean literally "give me."
** Probably "go for it."
†† At Cape York, from the first party, we got "carnitoonri."
‡‡ At Cape York, from the first party, we got "idawaibaipa."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
672	Go	bakĭam	backyam
673	— and come	. . .	ke backyam to aug* (630)
674	Going up hill	. . .	hopem na backyam
675	— down hill	. . .	sahbag na backyam
676	Gone	. . .	barrake
677	Grin	. . .	adoot hope (416)
678	Handle	itpae (692)	eetpay, or eetpie
679	Hasten	. . .	perper
680	Heap up	itoomed (68)	
681	Hear	assoor	assur
682	Hearken	. . .	meer jackay
683	Hiss	simaer	
684	Hop on one leg	*itĭac*	
685	Insult	. . .	ittopret
686	Is it?	. . .	neh
687	Itch	cap† (127) (237)	
688	Jump‡	owpŭmar	
689	Keep	. . .	marra, wadlaw
690	Kick	taertaer atoora (70) (784)	
691	Kill	epeet	epeet
692	Kiss	escos	ascos
693	Kneel	coco aemĕree (66) (739)	
694	Knit	. . .	eöere (703)
695	Know	. . .	woomel
696	Laugh	naeg	
697	Laughing	. . .	negaiguthe
698	Lean against	eerăse (738)	
699	Lie down	aedĭda	
700	Look	*a*ssĕmi	acemy
701	Let me look at it	dassĕmi or caca dassĕmi	
702	Lift, or handle, or feel	itpae	
703	Make	eewer	eever

* If this is correct, can the "ke-to" be disjointed parts of "ketto" or "keitu" "to come."

† We have here three quite irreconcileable meanings for the same or nearly the same word.

‡ At Cape York, 1st party, "Katapunjĭpe."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
704	Make fast with a rope	lagări (234)	
705	Mark (as in writing)	war, or war-war (651)	
706	Marry	eespee, or coskeer espee (441) (504)	cokgeer ispy
707	Mend	. . .	diper
708	Mimic	. . .	saggoor (318) (534)
709	Mix	. . .	mabboash
710	Murder	. . .	keerim deerap* (6) (618)
711	Must	. . .	backyam† (672)
712	Must not	. . .	decayer
713	Offer	. . .	equar (667)
714	Open	. . .	ekay (469)
715	— the eyes	irkeep bakair	
716	— the mouth	tae eskaeda (765)	
717	— the arms	batreemu	
718	Pat	‡sorge aress (38)	
719	Pay	. . .	equar (667)
720	Paddle	iraeb, oozher	
721	Pick up	taertaeru (70)	
722	Pinch	§taputo-eraeg (64) (611)	
723	Piss	oossi	
724	Plait	ewaer (703)	kidlag
725	Point at with finger	bowr ecoss (244) (776)	
726	Pull down	. . .	tidoomery
727	— the hair	kerimmoos darbor (29)	
728	Put on	. . .	looam (428)
729	— back	icardĕrar, icādi, ikkerĭda	
730	Prick	ecoss (776)	
731	Rejoice	. . .	debber (497)
732	Remain or stay	nomĭŏrdaer, mennа	
733	Remember	. . .	decapul (795)

* "To break the head." † "To go."
‡ Literally "to strike the back." § Literally "to bite with the finger nail."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
734	Rise up	. . .	ekeam (607)
735	— after sitting	*a*cŭë	
736	— after sleeping	ekĭam	
737	— after diving	etpAe (702)	
738	Roll	. . .	earask (698)
739	— between the palms	diskeemid (748)	
740	Row	oozher (232) (720)	
741	Run	corrAeder	curhidar
742	Sail	. . .	allun
743	Scrape	*e*coopĭmar, *a*criss	ecreess
744	Scratch, when itching	capŭto, (64) capăcriss	ecreess
745	— the palm in shaking hands	tag dAewat (56)	
746	— in anger	taput (64), taputo-igow, tago-igow	
747	See	assĕmi (700)	ada sony
748	Shake	diskAer, itaep	isenroo
749	— hands	tag irpAed	
750	Shave	immoos battoo (31) (639)	emmoosh attu
751	Shew it	. . .	ka ka dasmi*
752	Shoot with a bow	ewătur, idōmaer	
753	Shout	aerer	deem
754	Shriek	. . .	elleanackree
755	Shut	. . .	loogekay†
756	— the eye	irkeep essami	
757	Sing	*wa*ed‡	sagoor obcree
758	Sit down	aemĕri	emmiry
759	— cross legged	bubu-barsi	
760	Sleep	oota	hoot, or woot
761	Slide or slip	peertar	
762	Slit	. . .	ecasmy
763	Smell	lucop (374), lagdes-soora	lagdasul
764	Smoke tobacco	erroorwer (505) (652)	
765	Smooth the sand	wAe parAed (404)	

* This means, "let me see it."

† I should have supposed this meant, "to open a thing."

‡ As a sign for any one to sing, they flip the back of the fingers against the under part of the chin.

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
766	Snatch	eetkae	
767	Sneeze	siow	
768	Snore	gegaer	woots*
769	Speak	meer, meercar	ekai, meer
770	Spear†		
771	Spit	mo-oos	mawsheek
772	Split, as wood	nakaesĭmu	ecas my
773	— as a leaf for making the "nessoor"	dekaes	
774	Squeeze	eerpae (678)	ithpay (678)
775	Squint	. . .	ekoss‡
776	Stab	. . .	ekoss
777	Stand, stop		aquay
778	Start	ezigmooret	
779	Starve	. . .	verrear (507)
780	Stoop	eparsi	ekai
781	Stop here	. . .	mackinaw
782	— longer	. . .	mana, mana (732) (479)
783	Straighten	bardĭtu	
784	Strike	§aress, atoora	eepeet
785	Suck	esōmi	irree (652)
786	Swallow	. . .	eerim (652)
787	Swim	baraeb	harrem
788	Take	icŏāra	eecaw
789	— it there	loo-*ica*	
790	— care	. . .	ina inou
791	— away	. . .	ablu cayg
792	Tear	lama, itu, ituatĭmi (778) *i*spasĭmo	
793	— with teeth	terĕgo-ditpe	
794	— off a piece	pec ikaesĭmi	
795	Think	. . .	decapool (733)
796	Throw away	adaem	

* Woota or hoota, or oota, "sleep."

† At Port Lihou, was "aipa."

‡ The copyist has probably made a mistake here and transcribed the following word, instead of the proper one, for "to squint." In the copy from which I took his column, these two words happened to follow each other.

§ At Cape York, 1st party, "Matăwaipa."

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No.	English.	Erroob and Maer.	Lewis's Murray Island.
797	Throw (as a stone)	atĭmid, (792) batowari, bakeer-batowerer (421)	battaurid
798	Tickle	derrŭve? itkĕri	
799	Tie, (as a knot)	macoob, didwar didbur	dimry
800	Tread*		
801	Twist	decōmaer	
802	Unbend	detreemu	
803	Uncork	dekaemur (714)	
804	Untie	detooĕmer	
805	Vex	. . .	ittopret (685)
806	Walk	maem	meemim (452)
807	Wash hands	tag itkeer (56)	
808	— clothes, &c.	og derroop (338)	oge derreepee
809	Whistle	coměla	cometlag
810	Wish	. . .	woah, or wah
811	Wring, (as in washing)	igaeměle	
812	Yawn	tae ewawi (20)	
813	Wound (with iron)	toolic-bassac	
814	— (with stone)	bakeer-ikesimeer (421) (753)	
	An affix of negation, implying the negative or opposite of the word to which it is added	cok	

* At Port Lihou, " coki."

Note. It may be observed, that in our column, the verbs are all those of motion or action, and therefore capable of being represented by visible signs. On imitating the action, they gave us the word.

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NAMES OF PLACES.

Murray Island, No. 1 . . .	MAer.
——— No. 2 . . .	Dowar.
——— No. 3 . . .	Waiër.
Place on South side of Maer .	Miriam.
Darnley Island	Erroob.
Village in Treacherous Bay .	Beeka.
Village on West side of Erroob	Keriam.
Villages in regular order going round to South and East . .	Zhee.
" "	MAedha.
" "	Badōga.
" "	Moggōr.
" "	Kaidērri.
Nepean Island	Oogar.
Stephen's Island	Attăgor.
Campbell Island	Jarmuth.
Dalrymple's Island	Dămood.
Rennell's Island	Tood.
Marsden's Island	Sirreeb.
York Island, No. 1.	Masseed.
——— No. 2.	Cudal.
——— No. 3.	Oomāga.
Islands South of these . . .	Oureed.
" " .	Poorem.
Sand bank N.E. of Erroob . .	Mĕrād.
Bramble Key	CAedha.
New Guinea	Dowdee.
Places in ditto	Samārree.
" "	Dodee.
" "	Keewai.
" "	Eemăree.
" "	Parrem.
" "	BAeb.
" "	Kerrĕged.
" "	Erro.
" "	Mowatt.
" "	Saibar.
" "	Dowar.
" "	Oige.
" "	Katătai.
" "	Sowee.
" "	Kagga.
" "	Cor.
" "	Baigoo.

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Names of Men.

Seewai.	Dzoom.	Manoo.	Burrŏma.†
Mammoos.*	Kĕouck.	Warro.	Băbōk.
Doodĕgab.	Jesse.	Koiyōp.	Garĭa.
Sapgob.	Duppa.	Kawi.	

Names of Women.

Keewai.	Atai.	Passălag.	Göee.
Mŏggōr.	Sassee.	Namoosa.	
Derry.	Boodha.	Wagoora.‡	

* I fancy this means, "red hair."

† Probably, "the pig," from "burroom.'

‡ This seems to mean, "blow the fire." The other names, both of men and women, and places, have all probably a meaning.

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No. IV.

ON THE GENERAL AFFINITIES OF THE LANGUAGES OF THE OCEANIC BLACKS.

BY R. G. LATHAM, M.D.

For philological purposes it is convenient to arrange the Blacks of the Asiatic and Oceanic Islands under five divisions.

I. The Blacks of the Andaman Islands. These are, comparatively speaking, isolated in their geographical position; whilst the portion of the continent nearest to them is inhabited by races speaking a monosyllabic language.

II. The Blacks of the Malay area. With the exception of Java, all the larger, and many of the smaller Malay Islands, as well as the Peninsula of Malacca, are described as containing, in different proportions, a population which departs from the Malay type, which approaches that of the Negro, which possesses a lower civilization, which generally inhabits the more inaccessible parts of the respective countries, and which wears the appearance of being aboriginal to the true Malay population. These tribes may be called the Blacks of the Malay area.

III. The Papuan Blacks of New Guinea. Under this head may be arranged the tribes of New Guinea, New

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Ireland, the New Hebrides, Tanna, Erromango, Annatom, New Caledonia, &c.

IV. The Blacks of Australia.

V. The Tasmanian Blacks, or the Blacks of Van Diemen's Land.

I. The Andaman Blacks will not be considered in the present note.

II. With respect to the languages of the Blacks of the Malay area, it may be stated unequivocally, that the dialects of each and every tribe for which a vocabulary has been examined, are Malay.

A. Such is the case with the Samang, Jooroo, and Jokong vocabularies of the Peninsula of Malacca.—See "Crawfurd's Indian Archipelago," "Asiatic Researches," xii. 109, "Newbold's British Settlements in Malacca."

B. Such is the case with every vocabulary that has been brought from Sumatra. The particular tribe sufficiently different from the Malay to speak a different language has yet to be found.

C. Such is the case with the eight vocabularies furnished by Mr. Brooke from Borneo; notwithstanding the fact that both the Dyacks and the Biajuks have been described as tribes wilder and more degraded than the Malay: in other words, as tribes on the Negro side of the dominant population.

D. Such is the case with every vocabulary brought from any of the Molucca, Key, Arru, or Timorian Islands whatsoever; no matter how dark may be the complexion, or how abnormal the hair, of the natives who have supplied it.

E. Such is the case with the so-called Arafura vocabularies of Dumont Durville from Celebes, and of Roorda van Eysengen from Amboyna and Ceram.

F. Such is the case with the languages of the Philippine

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Islands. In no part of the great Malay area has the difference between the higher and lower varieties of the population, been more strongly insisted on, and more accurately explained than here. Yet the testimony of the early Spanish Missionaries, as to the fundamental identity of the Black with the other languages is unanimous; and, to put the matter further beyond doubt, the few words of the Igorot negroes, near Marivèles, which are supplied by Lafond Luray, who visited them, are Malay also.

Now, on these grounds, and laying the Andaman Islands out of the question, it may be safely predicated, that, until we reach either New Guinea, or Australia, we have no proofs of the existence of any language fundamentally different from the Malay; whatever may be the difference in physical appearance of those who speak it.

III. For New Guinea, and the islands Waigioo, and Guebé, I have found only ten short vocabularies, and these only for the north-western districts. One of these, the Guebé, of the voyage of the Astrolabe, although dealt with by Mr. Durville as Papuan, is Malay. The rest, without any exception, have a sufficient portion of Malay words to preclude any argument in favour of their belonging to a fresh class of languages. On the other hand, the commercial intercourse between the Papuans and Malays precludes any positive statements as to the existence of a true philological affinity.

From New Guinea, westward and southward, we have for the localities inhabited by the black tribes with curly hair, the following vocabularies.

1. For New Ireland.

A. Gaimard's Carteret Harbour Vocabulary—Voyage de l'Astrolabe, Philologie, ii. 148.

B. Durville's Port Praslin Vocabulary. Ibid.

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C. Dalrymple's, so called, New Guinea Vocabulary, collected by Schouten and Le Maire, given also by De Brosses.

2. For Vanikoro—Gaimard's Vocabulary in three dialects, the Vanikoro, the Tanema, and the Taneanou—Voyage de l'Astrolabe, Philologie, ii. 164.

3. Mallicollo—Cook's Vocabulary.

4. Tanna—Ditto. Also a few words marked G. Bennet, in Marsden's Miscellaneous Works.

5. Erromango—a few words by Bennet, in Marsden.

6. Annatom—Ditto.

7. New Caledonia—A short Vocabulary in Cook. A longer one in Dentrecasteau xand La Billardiere.

All these languages, although mutually unintelligible, exhibit words common to one another, common to themselves and the New Guinea, and common to themselves and the Malay. See Transactions of the Philological Society, vol. i. no. 4.

IV. The Blacks of Australia are generally separated by strong lines of demarcation from the Blacks of New Guinea, and from the Malays. Even on the philological side of the question, Marsden has written as follows—"We have rarely met with any negrito language in which many corrupt Polynesian words might not be detected. In those of New Holland or Australia, such a mixture is not found. Among them no foreign terms that connect them with the languages even of other *papua* or negrito countries can be discovered; with regard to the physical qualities of the natives it is nearly superfluous to state, that they are negritos of the more decided class."—*p.* 71.

In respect to this statement, I am not aware that any recent philologist has gone over the *data* as we *now* have

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them, with sufficient care to enable him either to verify or to refute it. Nevertheless, the isolation of the Australian languages is a current doctrine.

I believe this doctrine to be incorrect; and I am sure that, in many cases, it is founded on incorrect principles.

Grammatical differences are valued too high; glossarial affinities too low. The relative value of the grammatical and glossarial tests is not constant. It is different for different languages.

In 1844, I stated, at York, that from three true Malay localities, and in three true Malay vocabularies, I had found Australian and Tasmanian and Papuan words, viz:—

1. In the Timboran dialect of the Sumbawan.
2. In the Mangerei dialect of Flores.
3. In the Ombayan of Ombay.

1. Arm = *ibarana*, Ombay; *porene*, Pine Gorine dialect of Australia.

2. Hand = *ouine*, Ombay; *hingue*, New Caledonia.

3. Nose = *imouni*, Ombay; *maninya*, *mandeg*, *mandeinne*, New Caledonia; *mena*, Van Diemen's Land, western dialect; *mini*, Mangerei: *meoun*, *muidge*, *mugui*, Macquarie Harbour.

4. Head = *imocila*, Ombay; *moos*, (= hair) Darnley Island; *moochi*, (= hair) Massied; *immoos*, (= beard) Darnley Islands; *eeta moochi*, (= beard) Massied.

5. Knee = *icici-bouka*, Ombay; *bowka*, *boulkay* (= forefinger) Darnley Islands.

6. Leg = *iraka*, Ombay; *horag-nata*, Jhongworong dialect of the Australian.

7. Bosom = *ami*, Ombay; *naem*, Darnley Island.

8. Thigh = *itena*, Ombay; *tinna-mook* (= foot) Wioutro dialect of Australian. The root, *tin*, is very general throughout Australia in the sense of *foot*.

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9. Belly = *te-kap-ana*, Ombay; *coopoi*, (= navel) Darnley Island.

10. Stars = *ipi-berre*, Mangarei; *bering*, *birrong*, Sydney.

11. Hand = *tamaraga*, Mangarei; *taintu*, Timbora; *tamira*, Sydney.

12. Head = *jahé*, Mangarei; *chow*, King George's Sound.

13. Stars = *kingkong*, Timboro; *chindy*, King George's Sound, Australia.

14. Moon = *mang'ong*, Timbora; *meuc*, King George's Sound.

15. Sun = *ingkong*, Timbora; *coing*, Sydney.

16. Blood = *kero*, Timbora; *gnoorong*, Cowagary dialect of Australia.

17. Head = *kokore*, Timbora; *gogorrah*, Cowagary.

18. Fish = *appi*, Mangarei; *wapi*, Darnley Island.

Now as the three dialects have all undoubted Malay affinities, the statement of Marsden must be received with qualifications.

V. Concerning the language of Van Diemen's Land, I venture upon the following statements, the proofs of which I hope, ere long, to exhibit *in extenso*.

α. The Language is fundamentally the same for the whole island; although spoken in not less than four dialects mutually unintelligible.

β. It has affinities with the Australian.

γ. It has affinities with the New Caledonian.

A fourth proposition concerning the Tasmanian language exhibits an impression, rather than a deliberate opinion. Should it, however, be confirmed by future researches it will at once explain the points of physical contrast between the Tasmanian tribes and those of

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Australia that have so often been insisted on. It is this—that the affinities of language between the Tasmanian and the New Caledonian are stronger than those between the Australian and Tasmanian. This indicates that the stream of population for Van Diemen's ran *round* Australia rather than *across* it.

The following affinities occur between the vocabularies published in the present volume and the Malay and Monosyllabic dialects; and they are the result of a very partial collation.

1. Blood=*mam*, Darnley Island; *muhum*, South Jooroo dialect of Malacca; *mau*, Anamitic of Cochin China.

2. Nose=*peet*, Darnley Island; *peechi*, Massied; *pih*, Chinese; *pi*, Kong Chinese.

3. Face=*awop aup*, Murray Islands; *eebu*=(head) Cape York, Massied; *oopoo*=(head) Tahiti; *epoo*, Sandwich Islands; *aopo*, Easter Island.

4. Hair=*moos*, Darnley Island; *mooche*, Massied; *maow*, Chinese.

5. Country=*gaed*, Darnley Island; *kaha*, Ternate.

6. Black=*gooli*, Darnley Island; *houli*, Tongataboo.

7. Hand=*tag*, Darnley Island; *tangh*, Madagascar; *tong*, Jooro; *tay*, Anamitic. A current Malay root.

8. Fish=*wapi*, Darnley Island; *iba*, Poggy Isles off Sumatra. Also in other Malay dialects.

9. Flame, fire=*bae*, Darnley Island; *api*, Flores, or Ende; *fai*, Siamese; *ffoo*, Kong Chinese.

10. Hair=*gal*, Massied; *eeal*, Cape York; *yal*, Port Lihou; *houlou*, Tongataboo.

11. Teeth=*dang*, Massied; *danga*, Cape York; *dang* Port Lihou; *dang'eta*, Gunong-talu of Celebes; *wahang*, Menadu; *rang*, Anamitic.

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The evidence upon which I rest my belief of the fundamental unity of the three philological groupes of the Malay, Papua, and Australian languages, is, of the sort called *cumulative;* and it is the only evidence that our present *data* will afford us.

Believing, however, in such a fundamental unity, the problem to be solved by further researches on the vocabularies from either Torres Strait or the South of New Guinea, is the problem as to the particular quarter from which New Holland was peopled—whether from New Guinea, or from Timor. Such a problem is not beyond the reach of *future* philologists.

In the fifth volume of Dr. Prichard's valuable work, I find that Mr. Norriss has indicated points of likeness between the Australian dialects, and the Tamul languages of Southern India.

Such may be the case. If, however, the statements of those philologists who connect on one side the Tamul, and on the other the Malay, with the Monosyllabic languages, be correct, the two affinities are compatible.

Upper Southwick Street,
May, 1847.

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No. V.

HEIGHTS of various points along the N.E. coast of Australia and in Torres Strait, calculated from Trigonometrical observations by MR. EVANS, Master of H.M.S. Fly.

District.	Precise locality.	Altitude in feet.
Sandy Cape	Hill over Observation spot	366
	Round Hill	299
Port Bowen	Entrance Island	190
	Round Islet	123
	Mount Flinders	500
	Clumps	362
	High Hill	773
	Mount Harvey	625
Cumberland Islands	L. Island, East peak	1250
	——— West peak	1070
West Hill	West Hill	996
	Long Hill	2332
	Mount Funnel	1190
	Round Hill near ditto	737
	Peak of Prudhoe Island	1026
	Smaller ditto	465
	Greenstone Island	356
Cape Hillsborough	Summit of the Cape	966
	Needle Peak	701
	Double Hummock	1880
	South Stony Mountain	4264
Whitsunday Passage	Cape Conway, high peak	1637
	Shaw's Peak	1484
	Linnè Peak	994
	East Deceitful Peak	1353
	Pentecost Peak	1054
	Captain King's 1504 Peak	1442
	Mount Dryander	2935
	Port Molle H. peak	1904
	ditto Aird's peak	1175
	Glocester Island, high peak	1907
	Holborne Island	481

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Districts.	Precise locality.	Altitude in feet.
Cape Upstart	Cape Upstart, 1st peak	2414
	Mount Abbot	3460
	Mount Elliot	4075
Rockingham Bay	Goold Island peak	1376
	Notched Mountain	2341
Lizard Island	Cape Flattery peak	855
	South Direction Island	561
	North ditto ditto	609
	Lizard Island peak	*1211
Cape Melville	Observation Peak	1265
	Flinders' high peak	994
	North double peak of Flinders' Isl.	640
Sir C. Hardy's Isl.	Summit of North Island	320
Cape York	Mount Adolphus	548
	Peak of Cape York Island	282
	Mount Bremer	420
	Peaked Hill	551
	Horned Hill	431
Central and western parts of Torres Strait	Double Island	218
	Mount Ernest	807
	Burke's Island	525
	Pole's Island	460
	Saddle Island	182
	Turtle backed Island	268
	Cap Island	285
	Mount Augustus	1311
Eastern part of Torres Strait	Island of Erroob, highest point	615
	Murray Island, bare peak of Maer	747
	Ditto, bare peak of Dowar	677

* The height calculated from barometrical observations was 1162 feet.

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No. VI.

NOTES ON THE CHARACTERS OF THE SKELETON OF A DUGONG, (*Halicore Australis*,)

From the North Coast of Australia, indicative of its specific distinctness from the *Halicore indicus* and *Halicore Tabernaculi*.

BY PROFESSOR OWEN, F.R.S.

To trace out the law of the modification of generic forms should be the chief aim in the comparison of the characters of different species, or what are so called. The differences about to be pointed out in the skull and dentition of the Dugong from the North Coast of Australia, are equivalent to those which are interpreted as specific distinctions in the Mammalian division of existing zoological systems. The bones of the *Halicore Australis*, here described, were transmitted by J. B. Jukes, Esq., from the North Coast of Australia, Endeavour Strait, lat. 22° S.

The skull of the young Dugong (*Halicore indicus*), described and figured by Sir E. Home (Philos. Trans. 1821, pl. 20), measures 8 inches 9 lines in length, retains the deciduous tusks, and has rudiments of the permanent tusks, which are 9 lines in length. The first, second and third molar teeth have cut the gum and been worn: the fourth has pushed its rough, rounded, uneven summit through the alveolus, but, apparently, not through the gum: the rudiment of the fifth, which is the last molar tooth in the Indian species, is concealed in its closed alveolus.

In a more advanced specimen of *Halicore indicus*, which

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I dissected at the London Zoological Society's Museum (Proceedings of the Zool. Soc. 1838, p. 41), the skull, a section of which is figured in my 'Odontography,' pl. 92, measures 14 inches in length: the deciduous incisor and the first molar are still retained: the fourth molar has come into use: the rough summit of the last molar is through the bone, but, apparently, had not pierced the gum.

The first molar in both the above specimens of *Halicore indicus* has a crown 2 lines broad; the second molar is 3 lines broad; the antero-posterior extent of the four first sockets is 1 inch 5 lines in both specimens.

The above admeasurements are taken from the upper jaw, and there is not any trace of a socket anterior to the first small molar in either upper or lower jaw of either specimen of the Indian Dugong.

The germ of the last (fifth) molar in the skull of the younger individual (Home's), shews the beginning of the lateral channels which occasion the characteristic bilobed form of its summit, or transverse section. If, at a still earlier period, there be a molar anterior to the first small one in place in the *Halicore indicus*, it must be extremely minute, a mere rudiment manifested only in the substance of the gum, and leaving no trace of its existence upon the alveolar border of the jaw.

These observations and comparisons led me, in 1840, to adopt the conclusion to which Cuvier had arrived from his examination of the rich series of skeletons of the *Halicore indicus* in the Paris collection, as to the numerical formula of the molar teeth: viz., that not more than twenty are developed, five on each side of both upper and lower jaws: expressed by the formula, $\frac{5}{5}\,\frac{5}{5} = 20$.

But this formula must now be regarded as characterising the species of India and the Red Sea, not the genus *Halicore*.

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FIG. 1.—Upper Jaw, Australian Dugong.

FIG. 2.—Half of Upper Jaw, Indian Dugong.

One of the skulls of the *Halicore australis*, transmitted by Mr. Jukes (fig. 1), which is of a size and age intermediate between the two skulls of *Halicore indicus* above compared, has six alveoli (*b*, *c*, *d*, *e*, *f*, *g*,) on each side of both jaws, the last (*g*,) containing the germ of a molar, which shews, at its widely open base, the great antero-posterior extent, and the commencement of the lateral longitudinal impressions, which produce, when the tooth is worn, the hour-glass form of the grinding surface, characteristic of the last molar of the genus *Halicore*.

The teeth, unfortunately, have been lost out of the five anterior open sockets, the shape of which, however, shews that all these teeth were of the simple sub-cylindrical form, and had been in use, like the four teeth anterior to the last molar tooth in the larger of the two skulls of the *Halicore indicus* above compared.

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The first socket (*b*) is three lines in transverse breadth: the second socket, (*c*) which answers to the first in *Halicore indicus*, (fig. 2, *c*, as shewn in the figure of a portion of a skull of an individual of that species corresponding in age with the *Halicore australis*, fig. 1), is four lines and a half in breadth, indicating a proportionately larger tooth: the third socket (*d*, fig. 1), answering to the second in fig. 2, is nearly six lines across its outlet, and a narrow longitudinal ridge along its outer wall, indicates the implanted part of the molar to have been impressed with a longitudinal channel, like the anti-penultimate molar in *Halicore indicus*.

The ante-penultimate socket in *Halicore australis* (fig. 1, *e*) has not the ridge projecting from its outer wall: its aperture is seven lines and a half across; whilst its corresponding socket in *Halicore indicus* (fig. 2, *e*) is only six lines across, and it shews the ridge along its outer wall, which impresses the implanted part of the tooth.

The penultimate socket (fig. 1, *f*) is also larger in *Halicore australis* than in *Halicore indicus*, (fig. 2, *f*); indicating the specific superiority of size in that tooth. The rudiment of the last molar in *Halicore australis*, agrees in size as well as shape with that in *Halicore indicus*.

The above comparisons refer to the molars of the upper jaws; but the same differential results are yielded by the lower jaws of the two species.

Comparative admeasurements of the two skulls of mature individuals of the species *Halicore australis* and *Halicore indicus*, of the same sex, and at the same age, viz. before the ante-penultimate molar has been shed and when the sockets of the anterior molars have been obliterated, shew the *Halicore australis* to have a smaller head, and most probably to be a smaller animal, than the *Halicore indicus*. The specific distinction is, however, more decidedly manifested by the difference in the dental

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formula, and by certain osteological characters, of which the following are the principal.

The alveolar series of the two sides of the upper jaw, in the younger skull of *Halicore australis* (fig. 1), have a greater anterior convergence, and the outer boundary or curve of the series is more convex than in *Halicore indicus* (fig. 2). The basi-occipital bone, and parietal bone, are broader in proportion to their length in *Halicore australis*. The part of the deflected maxillary and intermaxillary bones, which is bounded posteriorly by a ridge, is longer in proportion to the breadth of the same part in *Halicore australis* (fig. 3), than in *Halicore indicus* (fig. 4).

FIG. 3.—Skull of Australian Dugong.

FIG. 4.—Skull of Indian Dugong.

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The deflected symphysis of the lower jaw is also longer in proportion to its antero-posterior extent in *Halicore australis* (fig. 3). There are some minor differences in the cranium; but the general structure and configuration of this part of the skeleton is closely similar in both species.

With regard to the rest of the skeleton, the scapula (fig. 5) best exemplifies the specific distinction of the *Halicore australis.*

FIG. 5.—Blade Bone, Australian Dugong.

FIG. 6.—Blade Bone, Indian Dugong.

This is seen in the minor breadth as compared with the length of the bone, arising chiefly from the straighter anterior costa, which in *Halicore indicus* (fig. 6) describes a bold convexity; and this character is as well manifested in the young Indian Dugong, whose skeleton is figured *in*

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the "Philosophical Transactions," 1821, plate XX, as it is in the largest and oldest individuals. The neck of the scapula is relatively longer, and the coracoid process relatively broader and shorter in the *Halicore australis* than in the *Halicore indicus*.

The lower jaw of the younger specimen of *Halicore Australis* shews, by the superior size and depth of the third incisive alveolus, counting from below upward, in each ramus, that the rudimental incisors were present in those sockets, where they have been commonly found in the *Halicore indicus*. In the lower jaw of the older specimen of *Hal. australis* these sockets were filled up, like the rest, by a coarse reticulate bony mass.

Of several upper permanent incisive tusks transmitted by Mr. Jukes from the North Coast of Australia one pair shews the deflected shallow base, marked off from the body of the tooth, as in the incisive tusks of the female *Halicore indicus;* these female tusks in the Australian Dugong were each 7 inches long.* Other tusks of equal length, with an unexpanded and unbent base, more deeply excavated for the persistent pulp, as in the incisive tusks of the male *Halicore indicus*, shew the same unworn, rough, subobtuse apex as the female tusks, and indicate that these incisive tusks had not been protruded and put to use, as we find those of similar size in the males of the *Halicore indicus* to have been, when they always shew an obliquely worn or bevelled extremity as well as the unexpanded hollow base. The correspondimg base of the apparently male tusks in *Halicore australis* are less deeply excavated than those of the male *Halicore indicus*.

The chief specific character of the Australian Dugong

* For the determination of the sexual characters of the tusks of the Dugong, see my 'Odontography,' p. 364.

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appears, from the materials submitted to my examination, to be the development of twenty-four, instead of twenty molar teeth: although, these, as in the Indian species, are ultimately reduced to eight, two on each side of both upper and lower jaws.

With regard to the Dugong of the Red Sea, for which the distinguished Naturalist and Traveller RÜPPEL has proposed the name *Halicore Tabernaculi*, "in case it should actually prove distinct from the Dugong of the Indian Seas;"* it is certainly distinct from the species here described. The scapula would seem to differ from that of the *Halicore australis*, and to resemble that of the *Halicore indicus*, inasmuch as its upper border forms the same elliptical curve.†

The more obvious osteological characters of the genus *Halicore*, are described as they present themselves in the Dugong of the Red Sea, but without comparison with those of the *Halicore indicus*. Dr. Soemmerring in his observations prefixed to Dr. Rüppel's description, says that the identity of the *Halicore Tabernaculi* with the Indian species scarcely admits of doubt.‡

He describes an individual in the stage of dentition, when the ante-penultimate molar is retained with the last two molars, but is reduced to small size, 'sehr klein'. In the old males, and even in females of the Dugong of the Red Sea, the upper incisive tusks project two inches from the gums. In this respect the Red Sea Dugong deviates

* "Falls sie sich als eine eigne, von der Halicore Dugong der Molucken wirklich verschiedene Species bestätigen sollte."—*Beschreibung des im-rothen Meere vorkommenden Dugong (Halicore)*. *4to*. 1833. *p*. 113.

† "Der obere Rand des schauelförmigen Thiels eine halb-elliptische Krümmung bildet."—Ib. p. 110.

‡ "Nach genaueren auf Cuvier's Veranlassung, &c. &c.—ist an der Identität beider kaum mehr zu zweifeln."—Ib. p. 97.

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still further than does the Indian species from the Dugong of the Australian coasts.

Without a knowledge of the modifications of the dental system of the immature individuals of the *Halicore Tabernaculi* of Rüppel its claim to specific distinction must remain very problematical: and it is the possession of this information that has chiefly induced me to pronounce so decidedly on the specific distinction of the *Halicore australis*.

The development and long retention of a sixth small anterior tooth, of use in mastication, is a strong character of the species; but, passing from the analytical to the synthetical point of view, we may discern in this character, an approach to the Manatee—to that other generic form of apodal pachyderm, or herbivorous Cetacean, with still more numerous molar teeth, which still exists (*Manatus*, Cuv). And thus is exemplified that tendency to the common type, which is manifested in *Halicore australis*, as in other animals, at an early stage of life, and which was lost as the individuals approached maturity, when the numerical formula of the molars of the Australian species was reduced to the $\frac{2}{2}\,\frac{2}{2}$ of the old Indian Dugongs.

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No. VII.

DESCRIPTION OF A NEW GENUS OF SNAKES,

BY J. E. GRAY, ESQ. F.R.S. F.Z.S. &c.

The Sea Snakes (*Hydridæ*) form a very distinct group of Reptiles, easily known at first sight, by their compressed tail and large superior operculated nostrils. The greater part of these animals have their abdominal surface much compressed, and covered on each side with a series of scales like the rest of the body, which are often united together, forming a narrow shield.

The well known genus *Aipysurus* is one of the abnormal forms of this family, having the broad band-like shield and the smooth scales of the vermiform land snakes, with the compressed tail, the nostril, the marine habit of the normal *Hydridæ*; but the transition of the *Aipysuri* to the *Hydri* was so abrupt, that it was to be expected, that there must exist some genus which had hitherto escaped the observation of naturalists, which would shew the gradual approximation; such a genus has at length been discovered by Mr. Jukes on Darnley Island.

This new genus, which I propose to call *Hypotrophis*, has the large blunt depressed head, covered with numerous head shields of the true Hydri, and like them, has the very high lateral shield; the throat covered with numerous imbricated scales; the eyes small, round, high up, and surrounded by several ocular plates, and the nostrils superior lunate and valvular, and the tail broad and compressed.

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Indeed to look at the head and tail, it would be said to be a normal *Hydrus*, but the scales are all smooth and polished like the vermiform land-snakes, and the genus *Aipysurus*, and those of the body are broad and six-sided, and it has broad band-like ventral shields, so that, in fact, it embraces the peculiar character of both genera; but it differs from them both in the broad ventral plates being folded together on each side of the sharp central ventral keel.

Genus HYPOTROPHIS.—*Gray.*

Head rather depressed, broad, rounded in front.

Head shields numerous, unequal, smooth, polished, parietal largest.

Supra orbital 3-3, front small, hinder largest.

Nasal large, superior; anterior ocular 1, posterior ocular 3, unequal; lateral shields, large high, the middle ones reaching to the lower edge of the orbit; rostral square, large convex, inferior rostral small, triangular, with a rounded notch above.

Temple and throat, covered with six-sided imbricated scales.

Nostrils semilunar, superior, valvular in the middle of the nasal plates.

Eyes moderate, rather superior.

Body elongate, rather compressed? covered with small polished six-sided imbricated scales.

Belly compressed, strongly keeled.

Ventral shield band-like, transverse, side folded together with a central notch in the middle of the hinder edge.

Tail strongly compressed, oblong, covered with a series of more or less broad transverse scales, the upper and lower edge strongly keeled, and covered with folded scales—the tip torn, covered with a single large compressed conical scale.

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Only a single species is yet known belonging to this genus, which was found on Darnley Island.

Hypotrophis Jukesii, *Gray Ann. and Mag. Nat. Hist.* 1846.

PLATE 1.

Pale olive brown (in spirits), rather paler beneath.

Inhab. Darnley Island.

Length, entire 5 feet; head 2¼ inches; tail 8 inches.

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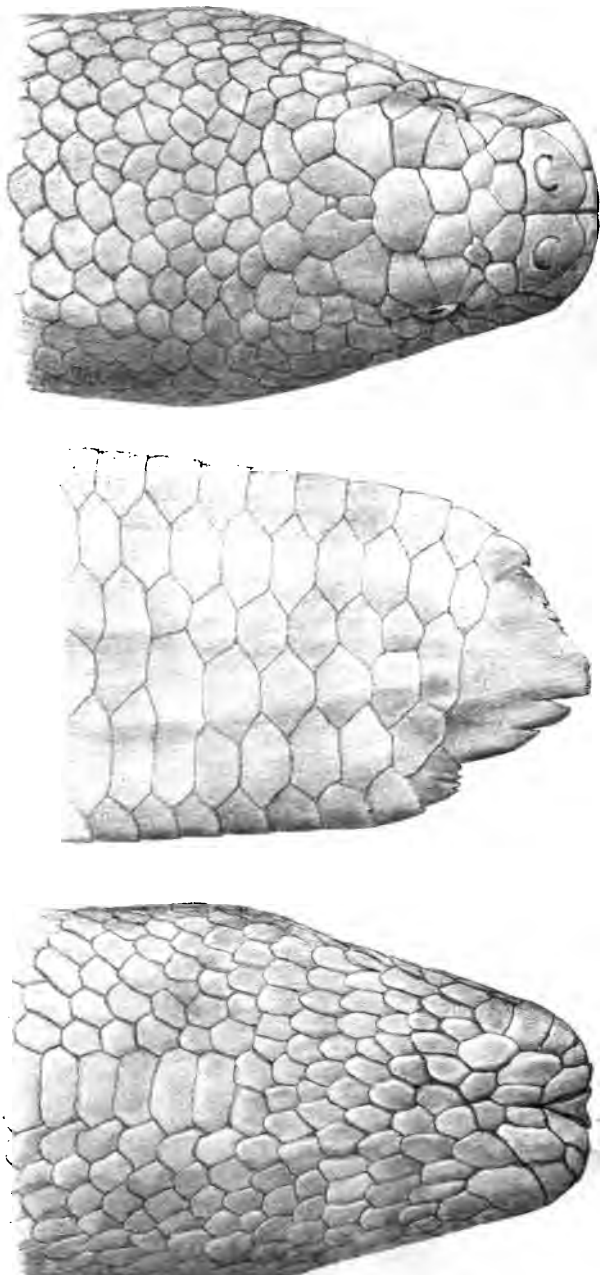

W. Wing del et lith.

Hullmandel & Walton Lithographers

HYPOTROPIS JUKESII

Pub.d by T & W. Boone. London

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No. VIII.

DESCRIPTIONS OF A NEW GENUS AND FIVE NEW SPECIES OF CRUSTACEA.

BY ADAM WHITE, F.L.S.

Family MAIADÆ.

Genus. XENOCARCINUS, *White.*

Carapace long, narrow, knobbed above, with a long very thick beak.

Beak cylindrical, horizontal, forming an elongated cone, truncated at the end, with two small spines at the extremity, one on each side.

Inner antennæ rather thick, inserted in a deep groove which is triangular in front.

Outer antennæ springing from the under side of the beak, just in front of the eyes, the first joint elongated, somewhat bent, the second not half the length of the first, both furnished at the end with two or three longish setæ, the other joints forming a bristle.

Outer Pedipalps together occupying a square space—the first joint very narrow at the base, the inner edge finely serrulated, second joint very long, the sides almost parallel, the end gradually pointed, the third joint somewhat pyriform with a tooth at the tip.

Eyes with a short thick pedicel.

Legs cylindrical, some of the joints slightly curved, tarsal

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joint long, slightly curved, the inner edge with many closely placed minute teeth.

Abdomen (of female) trapezoidal, hollowed in the middle, the segments, except the terminal joint, united in one piece.

This genus is nearly allied to ACANTHONYX Latreille, but may be readily distinguished from it by its long narrow Carapace; its cylindrical conical beak, and other characters specified above.

XENOCARINUS tuberculatus. *White, List of Crustacea in the collection of the British Museum, p.* 123.

Carapace with nine tubercles placed in three transverse lines, the central tubercle of the first line double, one placed before the other, the central tubercle of the third line also double, both placed transversely; the greater part of the beak covered with minute closely placed hairs and scales, two short lines of longer hairs on the upper side above and before the eyes; two or three waved longitudinal red lines on the posterior half of the carapace, the inner line continued before the eyes. First pair of legs (in female) short not reaching to the end of the beak, the claws small, equal and minutely toothed.

Hab.—Long Island, Cumberland Group. Caught in a seine.—In the collection of the British Museum, to which it was presented by J. B. Jukes, Esq.

Family CANCERIDÆ.

Genus. CARPILIUS, Leach.

CARPILIUS cinctimanus. *White, l. c. p.* 14.
PLATE 2. figure 3.

Carapace very wide without lateral tooth, the side divided into four lobes. Fingers of the claws black, whitish at the tip; the hand in the middle with a broad black band, which runs into the black of the immoveable finger: Carapace

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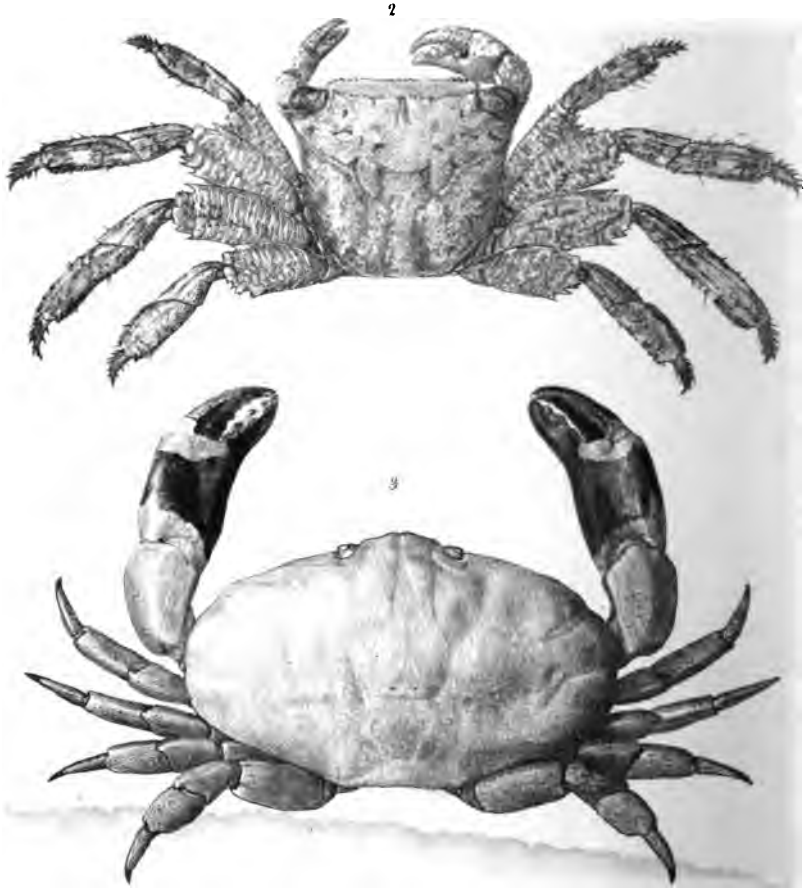

W. Wing del. et lith.

Hullmandel & Walton Lithographers

1. CYMOPOLIA JUKESII.
2. GRAPSUS LATIFRONS.
3. CARPILIUS CINCTIMANUS.

Pub.d by T & W. Boone, London.

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and legs smooth, of a rich red colour. Length of Carapace, 1 inch 4 lines. Breadth, 2 inches, 4 lines.

Hab.—Indian Ocean, and Eastern Seas.

This species is more transverse than any of the described species of Carpilius, and from its habit, &c. may hereafter constitute a distinct subgenus, when one or more allied species are discovered.

Genus. XANTHO, Leach.

XANTHO deplanatus. *White, l. c. p.* 17.

Carapace above smooth, and very much depressed: latero-anterior part very short, ending in a tooth, between which and the outer orbit are three lobes which are slightly rugose: front rather straight, with four slight lobes and a transverse line. Forelegs different in size and shape, the wrist with a curved impressed line on the outside. Legs hairy.

Hab.—Garden Island, Sydney.

Family GRAPSIDÆ.

Genus. GRAPSUS *Auct.*

GRAPSUS latifrons. *White, l. c. p.* 40.

PLATE 2. figure 2.

Carapace and legs mottled with yellow and reddish browns, much as in the *Grapsus messor*. Carapace considerably wider in front than behind, the frontal part very wide, longer than the side of the carapace, the edge dilated, straight and crenated—above this dilated edge are four slight transverse lobes, occupying the whole extent of the front, the two side ones longest, with several irregular warts in front: outer angle of eye sharp, spined—behind this an oblique groove on each side. Legs very long and flat.

Hab.—Eastern Seas, Singapore.

This species constitutes a well marked section of the

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genus distinguished by the great breadth of the front, and the flattened carapace, the sides of which are very oblique.

Family CAPHYRIDÆ.

Genus. CYMOPOLIA, Roux.

CYMOPOLIA Jukesii. *White, l. c. p.* 54.

PLATE 2. fig. 1.

Carapace wider than long, covered with minute granules, the front with two rounded teeth in the middle, behind each eye there are two fissures, the outer one smaller than the other: the side of carapace with three teeth, inclusive of the outer orbital angle, followed by two or three small tubercles. Hands filiform, grooved, fingers crossing at the tips; second pair of legs much smaller than the third and fourth pairs: third and fourth pairs of legs with the third joint of a longish oval shape, slightly toothed on the edge; upper surface, with a few tubercles, fifth joint with the outer edge fringed, with hairs which (in the dried specimen at least) are directed inwards.

Hab.—Sir Charles Hardy's Islands—dredged in eleven fathoms, coarse sand, by J. B. Jukes, Esq., after whom it is named.

This species is particularly interesting as being the second of a genus hitherto only known to occur in the Mediterranean, where *Cymopolia Caronii*, the type, was found by M. Roux.

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No. IX.

THE DESCRIPTION

OF SOME

NEW SPECIES OF STARFISHES, *ASTERIADÆ*.

BY J. E. GRAY, ESQ. F.R.S. F.Z.S. &c.

Mr. Jukes, Mr. Macgillivray, and my nephew, Commander Ince, R.N. brought home numerous species of this genus, most of which appeared to be new; but, unfortunately, they require more time for their comparison and description, than I can just at this time bestow on them. I have, therefore, left them to appear in my forthcoming illustrated Monograph of this family; and describe only the following very distinct and striking species.

I may here remark that several of the habitats given in Müller and Troschell's work are not correct, which is much to be regretted, as these authors have given an essay on the geographical distribution of the species of this genus, founded on their habitat.—*Pentagonaster pulchellus* (*Asterog. pulchellus, Muller, p.* 55), is from Japan and China, and not New Zealand; and they have evidently placed some of my species together as varieties of the same, without having had the opportunity of examining the specimens on which they are founded, as is the case with *Asterias Helianthus, A. Cumingii*, and *A. multiradiata*, which they regard as the same as *Asteracantheon Helianthus*, p. 18; they appear to think from their note, that the number of the arms is the only character which separates them, overlooking the proportion given, and the difference in the shape of the arms and spines.

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Culcita *Agassiz.*

This genus chiefly differs from *Randasia* and *Pentaceros* in having no open series of marginal ossicules; it agrees with *Randasia* in the back being nearly flat.

Culcita *Schmideliana.*

A. Schmideliana, *Retz Dis. Schmidels. Naturf. xvi. t.* 1. (good) A. discoidea, *Lam.*

Body subcircular, flat above when dry, (very convex, subglobose when alive.) The back coriaceous, without any apparent reticulations, covered with scattered small conical spines; the oral surface rather convex (when dry), closely and minutely granular, and with larger conical tubercles, those near the ambulacra and oral angles much the largest and ovate.

Inhab.—Australia?

There are distinct indications of the lower marginal ossicules in this species, but they and the ossicules of the oral surface are not sufficiently large and close to force the dry specimen to assume the pentangular form of the following species.

Culcita *pentangularis,* n. s.

Body pentangular, back flat when dry, convex beneath, minutely and closely granulated, back with obscure reticulations, the reticulations armed with small conical tubercles, the interspaces closely and minutely porous.

The oral surface protected with distinct well defined ossicules, defining the lower edge of the margin, closely covered with minute granules, and larger round-topped tubercles, those near the ambulacra and the oral angles being largest and highest.

Inhab.—Reef of Oomaga.

This species is very distinct from the former, and forms

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the passage to the genus *Randasia*, but has a series of sunken minutely porous spaces in the place of the upper marginal plates.

Randasia, *Gray*.

Body pentagonal, depressed, minutely granular. Back nearly flat, minutely granular, reticulated; reticulations rather tubercular; interspaces sunken (when dry), and covered with very minute close perforations. Dorsal tubercles, roundish, single, subcentral; margins furnished with an upper and lower series of oblong ossicules, the upper one narrower internally, with a central series of tubercles, the lower ones oblong, close together, and convex. The oral surface protected by close regular squareish convex ossicules, covered with short crowded granules. The ambulacral spines in rounded groups, the series of tubercles nearest the ambulacra larger, crowded, and placed in groups of three or five, and those in the oral angles largest and flat-topped.

This genus differs from *Pentaceros* in the back being flat, and not angularly elevated; it is, in several respects, intermediate between *Culcita* and *Pentaceros*.

Randasia *granulata*, n. s.

Body 5-sided, back minutely granular, with roundish convex subconical tubercles on the reticulations; the marginal plates 14 on each side, the upper ones with a central series of tubercles.

Inhab.—Reefs of Atagore, N. Australia.

There are two specimens of this species in the British Museum, one in a very bad state.

Randasia *spinulosa*, n. s.

Body 5-sided, back and upper marginal plates covered

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with numerous small conical acute spines, without any larger tubercles, the upper marginal plate indistinct.

Inhab. ——

This species is very like the former in shape, size, and appearance, but is very easily known from it by the numerous mobile acute spines, with which the back and upper part of the margin are covered, appearing to take the places of the small granulations, and by the absence of the tubercles on the elevated ribs of the back.

ASTERODISCUS, *Gray*.

Body pentagonal, coriaceous, depressed, covered with numerous close flat-topped unequal small tubercles; back convex; dorsal wart roundish, subcentral; arms short, rounded, with a pair of large convex kidney-shaped ossicules on each side of the tip above; margin simple rounded, beneath concave, ambulacra with a series of short linear spines, placed in groups of four or five, each group on a separate ossicule, and with two series of larger blunt clubshaped spines on the outside of the ambulacral spines.

ASTERODISCUS *elegans*, n. s.

Pale brown when dry, tubercles of the back unequal, the larger ones truncated, those nearest the mouth on the underside larger, clubshaped, rather crowded.

Inhab.—Japan. Brit. Mus.

PENTACEROS *granulosus*, n. s.

Five-rayed, rays as long as the diameter of the disk, rounded at the tip; back rather convex.

Ossicules convex rounded, all covered with close rounded granules, the two or three central ones on the top of each ossicule being larger, those on the middle of the back largest, and subtubercular.

The marginal ossicules convex rounded.

Inhab.—Western Australia.

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Young? arms more slender and the lower marginal ossicules near the tip of the arm, each with a group of two or three spines, the one nearest the tip largest.

The dorsal surface of this species is furnished with abundance of *Pedicellaria*, one arising from each hole between the ossicules.

STELLASTER *Incei*, n. s.

Purplish, minutely granular; back with scattered conical convex tubercles, those down the centre of the arm largest; the lower marginal plates are flattish.

Inhab.—Cape York.

This species is very like *Stellaster Childreni*, Gray, Ann. and Mag. N. H. 1840, 278. Müller Aster. 62, 128, t. 4, f. 3. *Asterias equestris*, Retzius Diss. 12. But it is purplish when dry; the back is tubercular; the whole surface is minutely granular, while the Javanese species is always white, the back smooth, and the granules of the surface are so minute and thin, that they are very easily eroded, and the lower marginal plates are more convex, and the central ones much larger than the others.

We have a third species of this genus from Borneo, which differs in the arms, being larger and much more slender; the back with only 5 or 6 tubercules, but the whole surface is minutely granular. It is named *Stellaster Belcheri*.

CALLIDERMA, *Gray*.

Body flat, five-sided; rays rather elongated; attenuated end only formed of the marginal plates, ossicules all minutely granulated.

The dorsal ossicules flat-topped, six-sided; some with a larger globular tubercle-like granule.

The marginal ossicules broad, gradually becoming smaller near the tip, sharp-edged, minutely granular; those

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of the upper and lower series alternating; the edge of the upper ones with some indistinct spines on the margin, the lower ones with scattered mobile spines on the oral surfaces.

The ossicules of the oral surface, three, four, or six-sided, granular, with one (rarely two) central compressed acute mobile spines.

The ambulacral spines very small, close, fourteen or sixteen on each ossicule, forming a rounder group, with two or three series of large scattered mobile acute spines on the outer side.

This genus resembles *Stellaster*, but differs from it in the oral surface being furnished with scattered spines.

There is a fossil species very like the one here described found in the chalk, and figured in Mr. Dixon's work on the Fossils of Worthing, which I propose to call CALLIDERMA *Dixonii*; there are probably several other fossil species from the same locality, they have been referred to the genus *Tosia*, but the ossicules are granular, and the oral surface spinose.

CALLIDERMA *Emma*, n. s.

Flat, pentangular, the sides concave, the arms elongated, produced, tapering to a fine point, about two-thirds the length of the diameter of the disks.

The dorsal ossicules six-sided, regular, flat-topped, covered with minute roundish granules, the central granules of the central ossicules and those down the centre of the arms larger, globular, tubercular-like

The margin sharp-edged, concave in the centre; the ossicules of the upper and lower series alternating, minutely granular, with one or two larger subspinose granules on the middle of the upper margin. Marginal ossicules about 50 on each surface on each side; the lower series with scattered acute compressed spines on their oral sides.

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The ossicules of the oral side four or six-sided, rather irregular, minutely granular, each armed with a central compressed acute mobile spine.

Inhab.—Japan ?

This species most nearly resembles a fossil found in the chalk, which has hitherto been referred to the genus *Tosia*, and will be figured in Mr. Dixon's forthcoming work on the Fossils of Worthing.

I have dedicated this fine species to my daughter, Mrs. J. P. G. Smith, who, before her marriage, commenced a series of plates to illustrate a monograph of this genus.

ANTHENEA, *Gray*.

This genus may be divided into two sections, one having a very large two-lipped pore on each ossicule of the oral surface, the back netted, chaffy, as *A. chinensis*, and the following new species:—

ANTHENEA *tuberculosa*, n. s.

Back obscurely netted, rather chaffy, with scattered large flat-backed tubercles.

Marginal ossicules with some moderate granules; the upper ossicules with one or more large flat-topped tubercles on their upper part.

Inhab.—Port Essington.

This species is very like *Anthenea chinensis*, Gray, *Asterias pentagonula*, Lam. ? but differs from it in being more convex and netted, and more distinctly tubercular, and in the upper marginal tessera being armed with tubercles.

Like the Chinese species, all the ossicules, both marginal and discal of the oral surface, are furnished with large elongated two-lipped pores.

The second section contains the following species, which

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have one or more small two-lipped pores on some of the ossicules of the oral surface. The back subtubercular, and the ossicules all covered with large roundish granules.

ANTHENEA *granulifera*, n. s.

Both surfaces covered with small roundish granules, the back with rather convex ossicules, the arms as long as the diameter of the body; back, with one or two scattered tubercles.

Var. back, with a blunt tubercle on the centre of each of the ossicules of the middle of the back.

Inhab.—Australia ?

This species is easily known by the granules on the surface, the length of the arms, and the small size of the two-lipped pores, those of the dorsal surface are very minute.

HOSIA *spinulosa*, n. s.

Body flat, pentagonal, sides concave, arms not half the length of the diameter of the body.

Dorsal ossicules large, subequal, six-sided; very minutely granular.

Marginal ossicules $\frac{1}{18}$ on each side, convex, deeply separated from each other with a series of 2 or 3 small acute spine-like tubercles in the centre of each.

The ossicule of the oral surface flat, minutely granular with small two-lipped pores.

Inhab.—Indian Ocean.

This species nearly resembles in shape the *Tosia australis*, but is at once known from that species by the granular ossicules, the spines on the margin, and the two-lipped pores beneath. It differs from *Hosia flavescens* in being five-sided instead of five-armed, and in having no spines on the middle of the back.

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ASTEROGONIUM (*restricted.*)

Body pentangular, flat above and below.

Back or oral surface protected by irregular ossicules, each covered with numerous erect cylindrical truncated tubercles, or granules, those of the oral surface largest.

Margin strengthened with regular oblong four-sided ossicules, covered with small regular granules, except on the most convex part of their centres, those of the upper and lower series opposite each other.

Dorsal wart single.

Ambulacra with cylindrical truncated spines, in groups of four on each ossicule of equal size not forming a rounded group, and with a series of similar rather larger spines on their side, and a series of small ossicules with terminal granules on their outer sides.

Bilabiate slit, none on either surface.

Messrs. Müller and Troschell have proposed a genus under this name, which I have here restricted to smaller limits; to distinguish the species more accurately I have described all we have in the Museum.

A.—*Body flat, five-sided, granules short. Ossicules flat-topped, not tubercled.*

ASTEROGONIUM *miliare*, n. s.

Flat, dark red, pentangular, rays rounded at the end, about one-third the length of the diameter of the disk.

Margin rounded, ossicules $\frac{2}{2}\frac{0}{0}$ or $\frac{2}{2}\frac{2}{2}$ on each side, covered with uniform close granules.

Dorsal ossicules, rather convex, covered with uniform granules.

Inhab.—New Zealand.

Like *A. granulare* in form, but the margin is round, and the marginal plates are more numerous.

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ASTEROGONIUM *granulare*. Asterias granularis, *Retz. Dis. Muller, Zool. Dan. t.* 92. *f.* 1.

Pentagonal, sides rather concave.

Back bright crimson, oral surface yellowish, marginal ossicules oblong, $\frac{14}{14}$ on each side, rather convex, covered, except at the most convex part of the upper and lower surface, with very minute granules.

Dorsal ossicules hexagonal, flat-topped, with short flat-topped granules. Ossicules of oral surface similar, but granules larger.

Inhab.—N. Sea. British Museum.

This species is very like *Tosia australis*, but is at once known from it by the granules covering the greater part of the surface of the marginal ossicules.

B.—*Back rather convex, the marginal and dorsal ossicules, with a small central convexity or roundish tubercle, the granules of the oral surface rather elongate, rounded.*

ASTEROGONIUM *tuberculatum*, n. s.

Body pentangular, sides concave, arms rather produced, acute, tapering.

The ossicules of the dorsal surfaces of the upper and lower marginal series, each furnished with a small central rounded tubercle.

Marginal ossicules $\frac{28}{28}$ on each side; the dorsal tubercles on the middle of the back and down the centre of each arm rather larger.

Inhab.—Port. Natal.

C.—*Body flat; the ossicules of the dorsal, marginal, and oral surfaces entirely covered with rather elongated uniform granules. Marginal ossicules small, erect, rounded above.*

ASTEROGONIUM *paxillosum*, n. s.

Blackish (perhaps discoloured); pentagonal, flat; arm

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nearly as long as diameter of disk, rounded at the end; all the ossicules of the back, edge and oral surface covered with regular uniform rather long erect granules, forming a level surface of the oval surface longest.

The marginal ossicule narrow, erect, rounded above; ambulacral spines elongate.

Inhab.—Port Essington.

This species, from the length of the granules, passes towards *Astropecten*, the elongated tubercles having much the appearance of those which are called *Paxilli* in that genus.

PENTAGONASTER *Dübeni*, n. s.

Body flat, five-rayed, rays two-thirds the length of the diameter of the disk, rounded at the ends.

Ossicules all convex, rounded.

Marginal ossicules $\frac{1}{10}$ large rounded, those near the end of the arms largest, most convex.

Inhab.—West Australia.

This species differs from *P. pulchellus* in the marginal ossicules, being more equal, and in the arms being much longer, and more slender.

The ossicules of the dorsal disk are unequal sized and rather irregularly formed, those near the margin on the middle of the sides are oblong and narrow, those of the oral surface are more regular and not so convex, those near the angles of the mouth being the largest and subtriangular.

I have named this beautiful species in honour of M. M. W. Von Düben, who has lately published a very admirable paper on the Northern species of this family.

TOSIA, *Gray*.

The granules between the ossicules are deficient in the dead and washed specimens. It has been thought that the

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fossil species found in the chalk belonged to this genus, but the surface of the ossicules of most of the specimens I have seen shew, from the scars with which their surface is covered, that they are covered with granules, therefore they rather belong to the restricted genus *Asterogonium*.

A.—*In some species of this genus the ossicules of the oral disk are more or less entirely covered with crowded flat-topped granules.*

Tosia *grandis*, n. s.

Dorsal ossicules very unequal, flat-topped; marginal ossicules $\frac{1}{14}$ or $\frac{1}{16}$ on each, sides rather convex. The ossicules of the oral surface are furnished with two or three rows of crowded granules, and those near the ambulucra are most covered.

Inhab.—Western Australia.

Lincke, under the name of *R. regularis*, *t.* 13. *f.* 22. 22. copied. E. M. *t.* 96. and *Seba, iii. t.* 8. *f.* 4. figures a species like the above, but it only has ten marginal plates. Müller, who thought he examined Lincke's specimen at Leipsic, describes it as having seven upper and five under marginal plates.

Tosia *aurata*, n. s.

Golden yellow; dorsal ossicules flat-topped, the five in the centre between the central lines of the arms largest and round, the marginal ossicules $\frac{1}{10}$ or $\frac{1}{12}$, rather convex and nearly equal, (that nearest the top not being longer than the others); the ossicules of the oral disk all, except a few in the middle of each, are entirely covered with flat-topped granules.

Inhab.—Australia. Brit. Mus.

B.—*In others the ossicules of the oral surface are only edged with a single series of granules, like those of the back.*

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TOSIA *tubercularis*, n. s.

Yellow, edge reddish.

The dorsal ossicules convex, subtubercular, those of the centre of the arms highest, those between the arms in the centre largest, nearly flat.

The marginal ossicules $\frac{6}{8}$ or $\frac{8}{8}$ on each side, convex subtubercular; the one near the tip of the arm largest and oblong, longitudinal, convex.

The ossicules of the oral surface small, each surrounded with a single row of granules.

Var? or Young? The ossicules of the oral surface near the edges covered with granules.

Inhab.—Swan River.

There is a specimen in the British Museum with six marginal ossicules, very like the above, but differing from them in the dorsal ossicules being only convex and rounded. It has the same convex and large subterminal marginal plate.

TOSIA *rubra*, n. s.

Red brown.

Dorsal ossicules rather convex rounded.

Marginal ossicules $\frac{11}{10}$ on each side, rather convex equal, the one next the tip of the arms smaller, narrower.

The ossicules of the oral surface flat-topped, with a single series of marginal granules.

Inhab.—Australia.

TOSIA *australis*. *Gray, Ann. Nat. Hist.*

Yellowish or reddish.

Dorsal ossicules rather convex rounded.

Marginal ossicules $\frac{6}{8}$ on each side, rather convex equal: The ossicules of the oral surface flat-topped, with a single series of marginal granules.

Inhab.—W. Australia, Swan River.

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PETRICIA, *Gray.*

Body convex, five-rayed.

Skin above and below varnished, spineless.

Back strengthened with numerous sunken moderate-sized ossicules; the margin with two series of larger oblong ossicules, spineless, the oral surface with rather regularly disposed smaller ossicules.

Ambulacral spines subulate, placed in pairs, with a second series of similar but rather larger spines on the outer side of them.

This genus is very like *Porania*, but the back does not appear to be angular; the margin is not edged with spines, and the ambulacral spines are in pairs, and not single as in that genus. The ossicules of the back and oral surface are punctured, and one of them, situated near the edge of the back in the middle space between the arms, is furnished with a linear pore edged with convex lips.

PETRICIA *punctata*, n. s.

Orange when dry.

Inhab.—The Reef of Attagor. J. B. Jukes, Esq.

There is a single specimen of this genus in the British Museum collection.

I may here remark that the specimen of Poraria gibbosa, the *Asterias gibbosus* of Leach, and *Goniaster Templetoni* of Forbes, in the British Museum, from Arran, are exactly like *Asterias pulvillus* of Müller, received from Norway, in the same collection.

PATIRIA, *Gray.*

This genus may be divided into three sections.

1. *Body pentagonal, the dorsal ossicules lunate narrow, the edge of the arms acute. The space of the upper side between the angles of the arms are covered with small roundish groups of spines.*

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PATIRIA coccinea. *Gray.* Asteriscus coccineus. *Müller and Trosh.* 43.

The roundish group of spines between the lunate ossicules is very abundant.

2. *Body five-rayed, rays thick rounded, dorsal ossicules lunate subtriangular; arms convex above and rounded on the sides.*

PATIRIA *granifera.*

? Asterias granifera. *Lam.* n. 24 ? var. ap etit grains. *Oudart. t.*

Brown, back rather convex.

The arms broad, rounded at the end, nearly as long as the diameter of the disk, rounded above, flat beneath; the lunate dorsal ossicules covered with short crowded spines, and with only a few small tufts of spines between them, the ossicules of the oral surface, each with a transverse line of six or eight spines.

Inhab. ———?

Variety, the arms more slender, about one-third longer than the diameter of the disk.

Inhab.—Brit. Mus.

The variety may be a distinct species, but the specimen is not in a sufficiently good state to determine this point with accuracy.

3. *The body five-rayed, rays thick, rounded, the dorsal ossicules especially; those at the end of the arms broad, rounded; the back covered with two or three beaked Pedicellaria, nearly hiding the tubercles.*

PATIRIA *ocellifera.*

Asterias ocellifera, *Lam. n.* 5. *Oudart t. fig.*

Body five-rayed, arms thick rounded, as long as the diameter of the disk, bluntish at the end; the dorsal ossicules

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broad, oblong, or roundish, reddish, covered with short crowded spines; of the oral surfaces with transverse rows of three to five mobile spines.

Inhab. ———

This species much more nearly resembles Oudart's figures, than the species I have described under the name of *Nectria oculifera*.

PTERASTER *Capensis*.

Body subpentagonal, swollen, edge very thick, rounded; back convex, reticulated, with rounded groups of very small ossicules at the junction of the reticulations.

Inhab. Cape of Good Hope.

The spines of the ambulacra like *Pteraster militaris*, but they are longer, and the series of webbed spines on their outer margins are scarcely longer than those of the ambulacra, while in the northern species they are much larger and thicker, and there is no appearance of the two large glassy spines at the angle of the mouth, so distinct and peculiar in that species.

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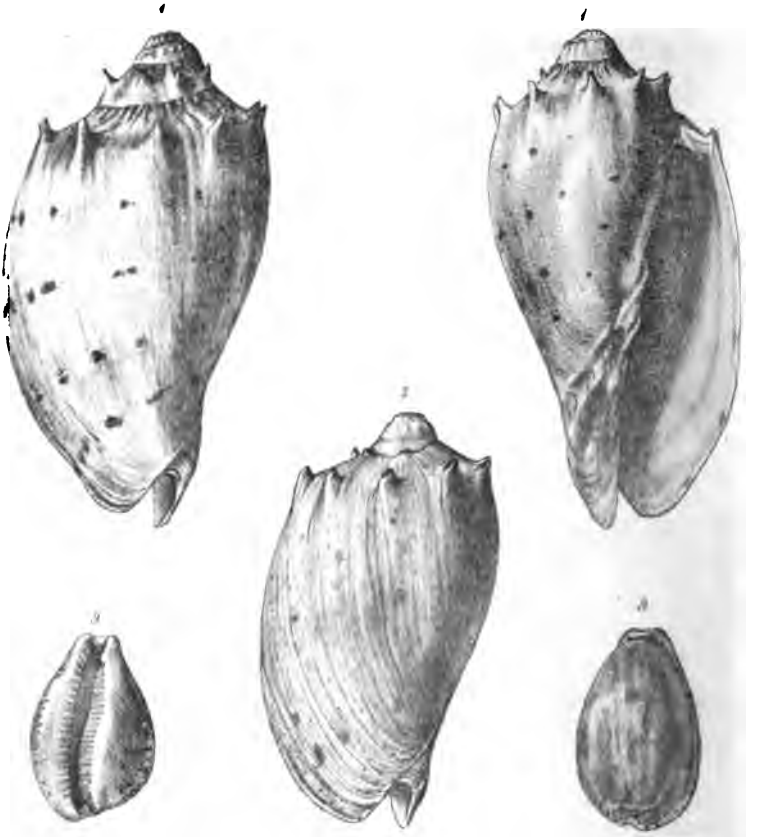

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No. X.

DESCRIPTION

OF SOME

NEW SPECIES OF MARINE SHELLS.

BY J. E. GRAY, ESQ. F.R.S. F.Z.S.

A CONSIDERABLE number of Shells were collected during the expedition; Mr. Jukes and the Earl of Derby sent many to the British Museum, and the others were sent by Mr. Jukes to Mr. Cuming; from these the following new and interesting species have been selected; the collection contains several others, but the examination and description of them would require more time than I can at this moment bestow on the subject.

VOLUTA *Sophia.*

Marine shells, Plate 1, *f.* 1. 2.

Voluta Sophia, *Gray, Ann. and Mag. N. H.* 1847.

Shell ovate, smooth, pale brown, with four series of squarish reddish brown spots, and brown lined near the suture in front of the pillar.

Spire conical, convex very short, covered with a thin callous coat, apex blunt, pale whitish crenulated.

Whorls very rapidly enlarging, with a spiral series of posterior, conical, acute, arched spines, last whorl ventricose.

Mouth ovate, three times as long as broad, the pillar with four oblique equidistant plaits, the two front rather

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the largest; the inner lip, and the part of the body whorl which lays on the body of the animal, is, like the spine, covered with a thin callous deposit.

Var. Pale, reddish, very minutely red dotted, and with the spots of the bands more irregular, and less distinct, fig. 2.

Inhab.—Endeavour River. Cabinet of the British Mus. f. 2. and that of Mr. Cuming, fig. 1., the latter has lost the callous deposit on the spine and body whorl.

I have named this species in compliment to my daughter, to whom I am indebted for many drawings of new species of shells.

Cypræa *Comptonii*.

Marine shells, Plate 1. *f.* 3.

Shell ovate, grey brown, (when young, paler zoned) with three darker bands.

Spire, small, flattened, hidden, right margin rather thickened, sharp edged above, reddish white minutely black dotted, and stained with black, brown above in front; left margin roundish, scarcely thickened, brown dotted.

Under side purplish brown, mouth moderate, rather wider in front, teeth small, well defined, the outer hinder ones rather the larger, the columella with an elongated concavity in front not plaited.

Inhab.—Port Essington. My cabinet.

Mr. Gaskoin, who has described several new species of this genus since the publication of my Monograph, agrees with me in considering this species as distinct, and hitherto undescribed. The two specimens I have seen differ a little in the degrees of their ventricoseness.

The spots on the left side of the margin are rather the largest, and there are no spots on the lower surface.

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I have named this interesting species in honour of the Marquess of Northampton, P.R.S. whose unceasing exertions in the cause of science, and especially of Natural History, are well known to all.

ANCILLARIA *tricolor.*

Marine shells, Plate 1. *f.* 4.

Shell ovate, rather elongate, imperforate, purplish brown, spirally and concentrically but indistinctly striated, thin, smooth, very minute.

Spire conical, rather shorter than the length of the last whorl, blunt at the tip. Whorls slightly rounded, pale in front, last with a broad bright orange brown band in front.

The anterior enamel band, single, narrow, dark orange brown, about half as broad as the brown band, the front half pure white, the hinder or sutural enamel band, narrower than the front one, pure opaque white.

Pillar much curved without any plaits. Mouth ovate, twice as long as wide; outer lip (toothless?) throat brown.

Inhab.—Cape York on sand. Cabinet of Mr. Cuming.

ANCILLARIA *elongata.*

Marine shells, Plate 1. *f.* 5.

Shell ovate, elongate, imperforate, white, thin, smooth.

Spire, conical, one-third the length of the shell, rather blunt at the top; upper whorls spirally ridged, last whorl spirally striated, and slightly concentrically wrinkled.

Anterior enamel belt, single, polish white; the posterior enamel belt, similar but rather wider; pillar rather curved, without any plaits; mouth elongate, ovate; throat white, outer lip toothless. Axis. Diam.

Inhab.—Dupeeck's Island. Cabinet of Mr. Cuming.

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SCALARIA *striata.*

Marine Shells, Plate 2. f. 6.

Shell conical, turreted, white, whorls rounder convex, close together, minutely, closely and regularly spirally striated, and crossed with rather close thin equal laminæ; front of last whorl simply rounded; the axis about twice as long as the diameter of the last whorl, perforated; suture simple.

Mouth ovate, the concentric laminæ near the mouth thicker and more crowded.

Axis 16 lines, diameter 8 lines, length of mouth 6 lines.

Inhab.—Port Essington. Cabinet of Mr. Cuming.

There is in the collection an imperfect specimen of a second species from the same locality, which differs from the former in being more elongate and tapering, smooth, not spirally striated, the crossribs thicker, rather farther apart, and the whorls rather more pressed together at the suture. It may be called *Scalaria Essingtoniensis.* Axis 9 lines, diam. 4 lines.

IMPERATOR *nobilis.*

Marine Shells, Plate 2, f. 7.

Shell trochiform, pale white; spire conical.

Whorls nearly flat, smooth, the outer edge of the upper whorls being furnished with a broad expanded margin, which is broadly plaited on the upper side; the plaits becoming thicker and more prominent on the edge of the last whorl.

The front of the last whorl with regular spiral ridges, each crossed with regular imbricate arched scales, the second

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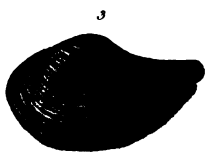

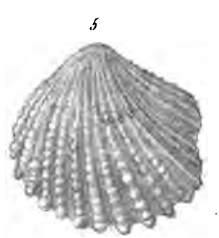

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and third near the circumference largest, and those nearest to them closer together.

The axis imperforated, covered with the rather expanded inner lip.

The mouth crenated, the throat silvery pearly.

Inhab.—Darnley Island. Cabinet of Mr. Cuming.

TURBO *squamosus*.

Marine Shells, Plate 2, *f.* 8.

Shell conical squamose, green brown, varied; apex acute.

Whorls rounded, with a deep rounded groove near the suture, the upper ones with very thin concentrical laminæ, and five spiral rounded ridges, the last with large crowded concentric laminæ, with eleven spiral ribs; the second from the front being broadest and flat-topped.

The axis perforated, and the perforations white, flat edged, with a sharp-edged raised rim.

The edge of the mouth crenated.

Throat silvery pearly.

Inhab.—Port Essington, N. Australia. Cabinet of Mr. Cuming.

STOMATELLA *elegans*.

Marine Shells, Plate 2, *f.* 1.

Shell oblong, rather depressed, white, black spotted, shewing the pearl through the semi-transparent outer coat, closely and regularly spirally striated and concentrically wrinkled.

Spire small, conical, whorls convex, rounded; the last very rapidly enlarging.

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Mouth oblong, spread out twice as wide as the diameter of the last whorl but one; the pillar less arched, flattened.

The axis imperforated.

Throat silvery pearly, smooth.

Inhab.—Raine's Island. Cabinet of Mr. Cuming.

STOMATELLA *rufescens*.

Marine Shells, Plate 2, *f.* 2.

Shell suborbicular, rather depressed, brown.

Spire, conical, rather acute.

Whorls rapidly enlarging, rather convex, concentrically striated with rather unequal acute spiral ridges, the upper whorls with two or three of the ridges larger and higher than the rest, the last with closer less raised ridges in front.

Mouth oblong, two-thirds the diameter of the shell in width, inner lip arched, edge crenulate.

Axis imperforated.

Throat silvery pearly, with a pale reddish edge.

Inhab.—Raine's Island. Cabinet of Mr. Cuming.

LEDA *chuva*.

Marine Shells, Plate 2, *f.* 3.

Shell ovate, convex, longitudinal, about half as long again as high, pale olive, with paler zones, and covered with regular concentric ridges, rounder in front, rather produced and bent up behind, with the hinder slope defined by a well-marked impressed groove, which interrupts the concentric ridges. The lunule ovate, lanceolate, concave, and regularly grooved.

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The umbo scarcely produced, in the middle of the shell, inside white.

Length, 1 inch; height, 7½ lines; thickness, 4½ lines.

Inhab. — Van Diemen's Land, Hobart Town. Mr. Cuming's cabinet.

It should be observed that the superficial ridges of this species, as in many others of the genera, are not concentric with the margin of the valve, but are commenced in the middle of the lower edge and the outer one, (as does also the second), terminates before it reaches the end of the shell.

Moldia *Mulleri.*

Marine Shells, Plate 2, f. 4.

Shell oblong, subquadrangular, smooth, dark olive brown, with a paler marginal zone, rather more than half as long again as high, rounder at each end, the hinder end highest.

Length, 1 inch 3 lines; height, 1 inch; thickness, 7 lines.

Inhab.—Port Essington. Cabinet of Mr. Cuming.

Trigonia *uniophora.*

Marine Shells, Plate 2, f. 5.

Shell reddish brown, with twenty-two or twenty-three high, rather compressed, rather close diverging ribs, the upper part of the central, and the whole of the posterior lips covered with close, regular transverse plates; the anterior and the lower part of the central ribs with large roundish or oblong solid tubercles.

The hinder slope with five or six nodulose ribs.

Inhab. — Cape York, in 6 fathoms. Cabinet of Mr. Cuming.

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ANOMIA *Australis.*

Shell suborbicular straight above, and slightly eared on each side, opaque white, the upper valve convex, with numerous nearly regular radiating ribs, which become evanescent (perhaps from wearing), near the margin. Under valve concave, greenish. The perforation or anterior notch small, oblong. The plug shelly.

Inhab.—Port Essington, adhering to rocks.

THE END.

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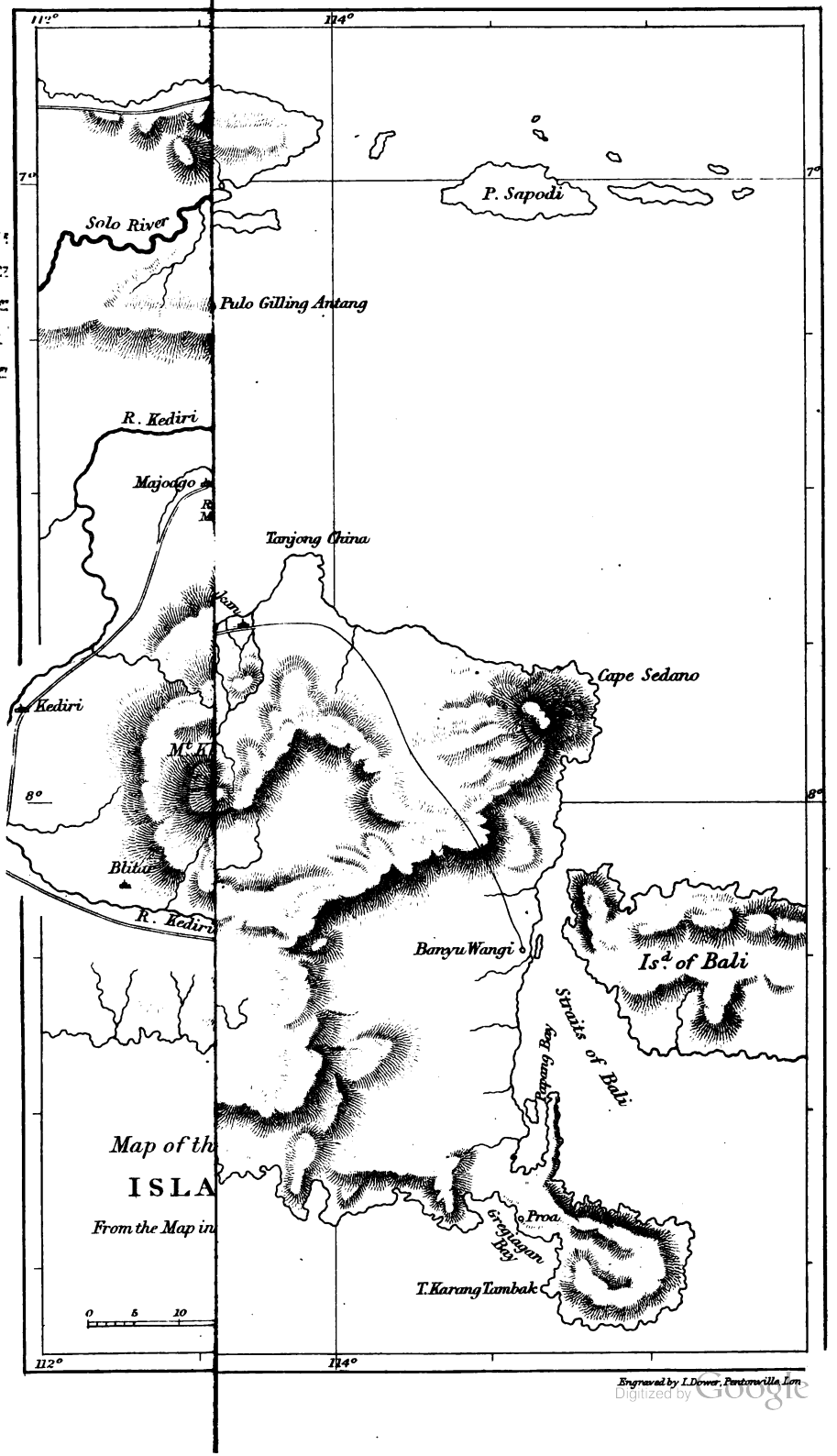

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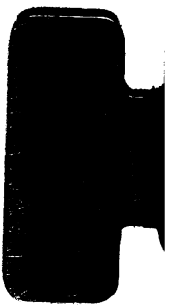

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